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REPORT

OF

The Tariff Commission

Vol. 4

THE ENGINEERING INDUSTRIES

Including STRUCTURAL, ELECTRICAL, MARINE AND SHIPBUILDING, MECHANICAL AND GENERAL INDUSTRIAL ENGINEERING

WITH ANALYSIS AND SUMMARY OF EVIDENCE AND STATISTICAL TABLES

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SECTION I.—INTRODUCTION

A complete summary of the statistical, oral and written evidence laid before the Commission on the Engineering Industries is contained in Section II. of this Report. The following are some of the points brought out :—

Official Returns

1. Out of a total of £5¼ millions of imports in 1907 no less than £3 millions are unclassified in the returns of the Board of Trade; similarly no official details are available of about £11 out of £31¾ millions worth of exports during 1907. In other words 57 per cent. of the imports and 35 per cent. of the exports cannot be traced into their respective groups, and the evidence of manufacturers shows that important changes in the character of leading branches, and especially 2
general industrial engineering, are thus undisclosed by the official figures. The manner in which this inadequacy of the official returns affects the various groups is brought out under the respective headings of the Summary.

State of the Industry

2. So far as can be judged from British and foreign statistics, and the evidence of manufacturers, the engineering industry has, on the whole, progressed during recent years but not so rapidly as the increase in the demand for engineering products or so rapidly as the engineering industries of the United States and Germany. Moreover, in many branches the conditions of competition in the British industry have become more difficult, in consequence of the rapid expansion of competing foreign industries, the greater security they enjoy in their home markets, and their greater power of competition in other markets. Witnesses also draw attention to the disadvantages from which the engineering and shipbuilding industries have suffered through labour difficulties. In 3
the shipbuilding industry the output of merchant tonnage has increased by 50 per cent. in the last ten years, though shipbuilders state that the proportion of imported materials is increasing. Nearly one-third of the shipbuilding in the United Kingdom is on foreign and Colonial account. The increase of shipping is largely due to the requirements of the coal export trade.

Causes

3. The expansion of British engineering is traced in part to traditional inventiveness, skill and enterprise; in part to the extension of traction and other services by municipalities and private companies, and the increased uses of electricity for lighting, heating, power and traction within the United Kingdom in directions largely beyond the reach of foreign competitors; and also to the growth of the Navy and armaments generally, and the exclusion of foreign competition in Admiralty and War Office contracts. This system of administrative protection, through the security it gives for the employment of skilled labour, plant and machinery, has been a great factor in the expansion not alone of shipbuilding and shipping but incidentally of other branches of 4
the engineering industry. The Admiralty expenditure on shipbuilding, &c., has averaged £21 millions per annum during the last ten years; the Government payments for shipping services are estimated at £2 millions per annum; while the loans raised by municipalities in the last ten years, principally for tramways, gas and electric lighting and power, sewage works, &c., have averaged another £21 millions per annum.

Administrative Protection

Legislative Restrictions

4. On the other hand some branches of engineering, such as the electrical and motor industries, were in their early days impeded by legislation which held back the British industries, and at the same time foreign industries were built up with the aid of tariffs, and established themselves in the British market. Witnesses also maintain that the obstacles in the way of schemes for inter-urban traction and power have hindered the development of the British electrical industry.

5 **Municipal Contracts**

5. Another deterrent influence has been the extent to which British municipalities have placed contracts with foreign manufacturers who are often willing to accept prices below the competitive level in order to establish themselves in the British market. These foreign firms then hold a preferential position for orders for subsequent renewals and extensions frequently at enhanced prices. This action of British municipalities has greatly aided in building up the German electrical industry which now competes keenly in British home and export markets. Witnesses draw attention to the practice of some other countries in which the charters and franchises of municipalities and public corporations enjoying special privileges include an obligation to place contracts at home rather than in foreign countries in those cases where the difference in price is slight and is thought to be outweighed by the benefits to home industry.

6 **Imports**

6. The imports of machinery products have increased largely and continuously. Their value was in 1907 £5,300,000, or 2¼ times that of 1897. The United States has 60 per cent. of the import trade of the United Kingdom; and Germany, Holland and Belgium 30 per cent. The largest group classified in the official returns is non-steam agricultural machinery, the imports of which increased by 94 per cent. since 1902.

Foreign Competition in the Home Market

7. Seventy-seven firms say they do not suffer from foreign competition in the home market; of these some state that the reason is the special character of their manufactures, and others that they work upon Admiralty or other State contracts. On the other hand more than 400 firms do complain of foreign competition in the home market, and from their evidence a list of 500 products or groups of products are named as being competitive foreign importations into this country. Many instances of dumping are given, as for example in structural
7 engineering where the greatly increased importation of German and Belgian steel joists, girders, &c., is said to have compelled British makers to "accept altogether unremunerative prices to secure orders." The importation of structural steel chiefly from Germany has increased by an average of 74 per cent. in ten years. In the electrical industry the erection of works in this country by United States firms has been accompanied by a heavy decline in importations from that country, while importations from other countries, chiefly Germany, Holland and Belgium have increased. According to the 1908 contract lists, 81 per cent. of the new plant for dynamos and alternators in generating stations in London and the provinces is of foreign origin. The importations of complete motor cars, chassis, &c., are of the value of £4 millions; while the annual value of the British output is estimated to be £5 millions. United States makers of binding harvesters are said to have secured 95 per cent. of the British home market. Of the flour used in the United Kingdom 75 per cent. is said to be ground and made by foreign-made machines. The industries concerned
8 with paper-making and other general industrial machinery have been seriously affected by the increased importations of foreign paper and other commodities. The sugar-making machinery industry was greatly depressed by the "dumping" of sugar into the United Kingdom prior to the Brussels Convention; the subsequent increase in home refining has led to a larger home demand for sugar-making machinery.

Exports

8. The exports, for which the official figures cover a much longer period, have also greatly increased, and were in 1907 of the value of £31¼ millions, or four times as large as the annual average during 1875–79. India takes one-sixth of the total. Russia, Germany, France, Argentina, Japan, Australia, Italy and Belgium are other important markets. The increase is especially marked, so far as the official returns show, in locomotives, chiefly to South America and India, and sewing machines, chiefly to Russia. The evidence indicates the large increase of exports of mining machinery to British Colonies such as South Africa and Western Australia, and of textile machinery to India. The development of the

9 textile industries in Continental countries and the United States has also made them for the present large markets for British textile machinery. Since the Brussels Convention the exports of sugar machinery to the West Indies have increased.

The Effect of Foreign Tariffs

9. Foreign tariffs, and especially those of the United States, France, Germany and the Central-European Treaty group of countries, are shown to have seriously interfered with exports in many branches of engineering, such as hydraulic machinery, locomotives, stationary and other engines, cycles, and textile machinery. The differential duties in favour of the United States have injured the British export trade in sugar machinery to Cuba, Porto Rico, the Philippines, and the Hawaiian Islands. The evidence shows the illusory character of the most-favoured-nation clause as a safeguard to British export trade.

Competing Foreign Industries

10 10. The machinery imports of the six largest industrial competitors of the United Kingdom have increased by £12¼ millions in fifteen years, and of these increased imports £1¾ millions only have come from the United Kingdom. The remaining importation has been supplied by mutual exchanges between these six countries encouraged, except in the case of the United States, by a network of Central European treaties. The machinery exports of these countries have increased in the same period from £10¾ to £44 millions, of which their exports to the United Kingdom rose from £900,000 to £4¼ millions.

11. The comparative positions of the machinery industries of the United Kingdom and principal foreign countries have been reversed in the last fifteen years. In 1891 the machinery exports of the United Kingdom were £5 millions more than the six largest competing foreign countries taken together; in 1906 they were £17 millions less. In this period the increased exports were :—United Kingdom, £11 millions; Germany, £15 millions; United States, £12½ millions.

India and the Colonies

11 12. In the Indian import market for engineering products the United Kingdom holds a predominant position, especially in respect of machinery, railway plant and rolling stock, the United States and Germany being comparatively small contributors. In Canada the United States has the chief share of the import market. In Empire markets generally the competition of the United States and Germany is increasingly felt. Taking India, Canada, and Australasia together, the United Kingdom share of the import trade has decreased from 80 to 55 per cent. during the last twenty years; the imports from the United Kingdom have trebled in twenty years and were in 1906 of the value of £7¼ millions, while those from other countries have increased ten times, and were £6 millions in 1906.

Preference

13. Colonial Preference, where it has operated upon engineering products, has been of much benefit, and an enlarged and carefully-arranged system of mutual preference would, it is thought, greatly assist the industry in offsetting the advantages derived by foreign competitors from their greater proximity to Colonial markets their preferential freight rates and their export systems in general. The evidence indicates the great industrial possibilities of the oversea States of the Empire and their increasing need of imported engineering products, and witnesses see no reason why the United Kingdom should not secure an increasing share of this trade. 12

Duties

14. The great majority of those giving evidence favour a moderate system of import duties with preference for the British Colonies and India, not alone because of the direct benefits in the home and export trades, but also because of the greater security and the stimulus to improved methods of production which it is believed such a system would provide. Increased production would, it is thought, tend to lower costs and keep down prices.

SECTION II—ANALYSIS AND SUMMARY OF EVIDENCE AND STATISTICS

The following is an analysis and summary of official British and foreign statistics and of the actual statements of Witnesses and of Firms responding to the Forms, without comment of any kind by the Commission. The summary has been compiled on the same method as that described in the case of other trades (see Cotton and other Reports); it retains throughout the words of Witnesses and Firms, and therefore expresses their views on the state of the industry.

**The detailed statements of Witnesses and Firms upon which the summary is based are
published in Sections III, IV and V of this volume and cover the period from 1904 to the end of
14 1908. Much evidence bearing on the Engineering Industries was also included in the Iron and Steel
Report of the Tariff Commission.**

In all cases, except where otherwise stated, the statistics are based upon official returns and comparisons have been carried as far back as the official classifications allowed.

(A) GENERAL STATE OF THE INDUSTRY

Complicated Character of the Industry

The Engineering industry is more complicated than any other industry which has formed
the subject of inquiry by the Commission. It is in fact a vast group of industries which continually
extends as the different trades become revolutionised by the application of machinery and new
motive forces to processes hitherto carried on by older methods. For the detailed examination
of the movements which are taking place in the industry the evidence of witnesses and the replies to
15 Forms of Inquiry are especially important because of the inadequacy of the classification adopted
in the official returns. Whole classes of engineering products which should be dealt with separately
are grouped together and the extent or direction of movements affecting important branches of the
engineering trade thus escape statistical observation. It is only a few years since the exports of
ships were included at all in the Board of Trade returns, and even now it is not possible to compare
effectively the statements of witnesses with official figures.

Official Returns

As will be seen from the detailed figures which follow out of £5¼ millions of engineering imports
in 1907 not less than £3 millions worth remain unclassified, while of the £31¾ millions of exports there
are no details of £11 millions worth. The most important omissions relate to the various classes
of industrial machinery such as machine tools, machinery for milling, printing, papermaking, wood-
working, sugar, leather, brickmaking, and cement. Hydraulic and heating, lighting and ventilating
machinery is also unclassified and other important engineering products are omitted. Thus the
items of one-half of the electrical importations are unenumerated. The statistics of 1908 introduce
material changes in the classification and these will permit of a more detailed examination of that
one year's trade, but in many of the new groups there are no earlier figures with which to make
16 comparison, and even in their revised form the official returns of 1908 show practically the same
amount of unclassified engineering products. The only effect of the revision is to improve the
classification of those goods which were previously classified.

General Tenour of Evidence

The general tenour of the evidence is that, despite labour and other difficulties, the engineering industry on the whole has progressed during recent years, but not so rapidly as the demand has increased for engineering products, or as rapidly as the engineering industries of other countries, particularly the United States and Germany. The increase which has taken place appears from the evidence to have been stimulated by the growth of the Navy and armaments generally; and especially by the widespread protection of the home industry secured by the exclusion of foreign competition in Admiralty and War Office contracts; the development of traffic facilities by municipalities and other bodies; the growing popularity of electric lighting and the increasing application of electrical and other power; the development of new branches, such for example as the motor car industry; changes in methods in industries in which machinery is applied, such for example as the milling industry; and the growth of oversea commerce which has had the effect

of increasing and at the same time making competition more keen in the shipbuilding industry.* 17
There is however overwhelming evidence that in practically all branches foreign competition in the home market has increased in recent years, and there can be no doubt that as compared with a generation ago the control of the home market by the British manufacturer is relatively less extensive and less secure. The evidence shows that efforts are made from time to time to mitigate what are regarded as unfair conditions of competition by combinations both international and domestic among manufacturers of particular engineering products but it is not clear how far this movement has gone or how far it is of a permanent character. On this point a manufacturer says :—"During the boom (1904–1907) the whole world has been busy and has left us pretty much to our own market. However we find a considerable amount dumped, and the prices quoted here are unremunerative as the German dumping price fixes ours. One very bad effect of the previous low prices arising from dumping here led the iron and steel manufacturers to form syndicates to keep up to a remunerative level the prices of their product to English buyers. There is hardly a branch of these trades which is not combined for this object. Of course this will ultimately result in foreigners dumping more than ever as they need not dump so low and then may be able to reduce their price to their home consumers which will give them a better chance of competing with us in the English grades of manufactures." 18

Combinations

Imports by Countries

The imports of machinery products in 1907 were 2¼ times those of 1897, which was the first year in which machinery and mill work was separated from iron and steel manufactures in the import returns. The following is a summary (in thousands of £) of imports from the principal countries; the detailed figures being given in Tables 16 to 20 (Sec. VI.) :—

TABLE 1.—UNITED KINGDOM. IMPORTS OF MACHINERY AND MILLWORK FROM PRINCIPAL COUNTRIES (in thousand £)

From	1897	1902	1907	Increase, 1897—1907	
				Amount	Per cent.
United States	1,620	2,984	3,117	1,497	92
Germany	303	763	906	603	99
Belgium	88	313	378	290	330
Holland	85	252	333	248	290
France	119	223	190	71	60
Canada	30	62	105	75	250
Total from all countries	2,371	4,761	5,312	2,941	125

19

It will be seen that the increase has been large and practically continuous. Correcting the import figures as given above so as to indicate the countries from which the goods were consigned instead of shipped, it appears that the German importation into the United Kingdom is considerably larger and the importation from Holland and Belgium considerably smaller than is shown 20
in the foregoing table. In 1907, for example, the importation from Germany was £906,000 worth whereas the actual German consignments were of the value of £1,355,000. On the other hand the imports from Holland were £265,000 and from Belgium £193,000 larger than the consignments.

---

* The expenditure included in the Admiralty estimates upon shipbuilding, repairs, maintenance, etc., during the ten years 1899–1900 to 1908–9 has been £150 millions; upon Naval armaments, £30 millions; upon works, buildings, and repairs at home and abroad, £15 millions; making a total of £195 millions. In addition, £24 millions was spent under the Naval Works Acts (1895–1905). The total Admiralty expenditure was therefore £219 millions, or at the average rate of £21 millions per annum, a small portion of which only could have been spent abroad. The expenditure by various governments on shipping services for the carrying of troops and supplies, and also of mails, is estimated to amount to another £2 millions per annum. Some idea of the expenditure of local authorities may be gathered from the fact that in the last ten years for which the figures are available, it amounted to £219 millions, exclusive of the capitalisation of the Metropolitan Water Board. The larger part of the sum was spent in connection with various municipal undertakings, such as tramway, gas and electric lighting and power, sewage works, etc.

21 The United States holds 59 per cent. of the import trade of the United Kingdom; eleven years ago it held 68 per cent. On the other hand Germany, Holland and Belgium together accounted for 20 per cent. in 1897 as compared with 30 per cent. in 1907. Canada is the only British Dominion substantially represented in this trade; the importations from Canada are chiefly agricultural machinery.

Imports by Commodities

There are insuperable difficulties in making any adequate analysis of the course of the import trade by groups. In the first place the classification in use up to the end of 1907 was not adopted until 1901; prior to that year Sewing Machines only were returned separately from Machinery. Hence no comparative figures can be carried further back than seven years. In the second place, as is pointed out above, no less than £3 millions still remain unclassified, out of a total of £5¼ millions in 1907; in other words only 43 per cent. of the imports are grouped in sufficient detail to permit of a survey of the progress of the leading branches.

Analysing the £2,258,000 worth of imports in 1907 which are classified (and including electrical machinery) we get the following table:—

22 Table 2—United Kingdom. Imports of Machinery and Mill Work in Principal Groups (in thousand £)

	1897	1902	1907	Increase (+) or Decrease (−) since 1902	
				Amount	Per cent.
Steam Engines—					
Locomotive	*	15·5	5·6	−9·9	−64
Agricultural	*	6·6	·8	−5·8	−88
Other descriptions	*	479	82	−397	−83
Not being Steam Engines—					
Agricultural	*	397	770	+373	+94
Sewing machines	291	378	486	+108	+29
Mining	*	27	81	+54	+200
Textile	*	119	230	+111	+93
Other descriptions (including electrical)	2,080	3,338	3,657	+319	+10
Total	**2,371**	**4,761**	**5,312**	+551	+12†

* Included in "Other Descriptions." † Increase since 1897, £2,941,000 or 124 per cent.

23 It will be seen that the most important classified group is non-steam agricultural machinery which accounts for about one-third of the classified total of £2,258,000. This group has increased by 94 per cent. since 1902. Sewing machines account for more than one-fifth of this total and textile machinery one-tenth. The former increased by 29 per cent. and the latter by 93 per cent. in the last five years.

Foreign Competition in the Home Market

24 The witnesses and firms whose evidence is contained in this volume give many illustrations of the effects of these large and growing importations of engineering products. These illustrations are summarised in some detail in Subsection (B) on The State of the Various Branches. The varied character of the importations is fully indicated. Over 500 items, many of them comprehensive groups in themselves, are contained in the list of competing imports. Many specific illustrations of dumping are quoted in later sections of this summary, and speaking generally it may be said on the authority of manufacturers that in most cases these imports have displaced British manufactures and that practically all of them could have been made with equal advantage in this country under more equitable administrative and fiscal conditions.

Seventy-seven engineering firms state that they do not suffer from foreign competition in the home market. These are chiefly shipbuilders and marine engineers, manufacturers of steam hydraulic machines, large steam engines, textile machines, &c. In most cases they explain that they do not manufacture the type of machines in which foreign competition exists, or that theirs is a local trade or that they are protected by Government prohibition of foreign materials or by patents.

25 Speaking generally it may be said that foreign competition in engineering products in the United Kingdom is increasing both in area and in severity. This competition is dependent upon the free market maintained in the United Kingdom and is often carried on by methods which British manufacturers consider most unfair. Thus a Continental company will establish an agency here under an English name, put up an English nameplate on a small office, and while paying little or no income tax or other contribution to British taxation, sell foreign goods as British at prices which undercut British manufacturers. "Duties," said one witness, "would unmask these houses that adopt British names. There is a certain sentiment which is not always shared by corporate bodies, I am sorry to say, that actuates our fellow countrymen towards home-made stuff and it must be in order to get round that that these firms pose under British names." The Merchandise Marks Act is spoken of as being quite unsatisfactory. It is said to deceive the public rather than assist, in view of the absence of any provision that the place of origin shall be placed on the actual goods manufactured.

A more detailed discussion of the import trade by groups and countries will be found in Subsection (B) on The State of the Several Branches.

Exports

26 The increase in the total exports of machinery and millwork during the last thirty years has been large and continuous, and in 1907 they were four times as large as in the five years ending 1875–9. It will be seen that the export figures cover a much longer period than those of the imports, and the classification has been more detailed, though constant alterations and sub-divisions make it impossible to compare for the whole period of thirty years the growths in the groups at present differentiated.

Exports by Countries

Taking fifteen years only, the growth of exports to principal countries in five-year periods and in groups (in thousand £) has been as follows:—[The detailed figures are given in Tables 26–36 (Sec. VI.).]

TABLE 3.—UNITED KINGDOM. EXPORTS OF MACHINERY AND MILL WORK TO PRINCIPAL COUNTRIES (in thousand £)

27

To	1893–97	1898–02	1903–07	Increase (first to last period)	
				Amount	Per cent.
Russia	1,903	2,592	1,924	21	1
Germany	1,651	1,846	2,016	365	22
Belgium	720	816	808	88	12
Italy	470	622	1,225	755	161
Argentina	416	446	1,727	1,311	315
Japan	716	572	1,020	304	42
India	2,063	2,435	3,896	1,833	89
Australasia	719	1,435	1,452	733	102
France	1,205	1,473	1,614	409	34

28 India has always been the chief export market for British machinery and millwork. One-sixth of the total exports (£5,364,000 in 1907) now goes there, or more than double the export to any other country. The most important items are textile machinery and locomotives. The other leading markets on the basis of the 1907 figures are Russia (£2,230,000), Germany (£2,366,000), France (£2,065,000), Argentina (£2,458,000), Japan (£1,828,000), Australia (£1,358,000), Italy (£1,795,000), Belgium (£1,156,000).

Exports by Commodities

One-third of the engineering exports which were of the total value of £31¾ millions in 1907 remain unclassified in the official returns, that is to say allowing for about £700,000 worth of electric machinery which is now separately returned, there remain about £8 millions worth of annual exports during 1903–7 of which no details are available. The exports in all defined groups have increased and the increase is specially marked in locomotives and sewing machines. In textile machinery which is the largest of the groups the increase is very small and is probably entirely accounted for by increased prices.

29 TABLE 4.—UNITED KINGDOM. EXPORTS OF MACHINERY AND MILL WORK IN PRINCIPAL GROUPS (in thousand £)

	1893–7	1898–02	1903–7	Increase (first to last period)	
				Amount	Per cent.
Steam Engines:					
Agricultural..	705	692	1,013	308	44
Locomotive	895	1,732	2,600	1,705	191
Others	1,487	1,704	2,554	1,067	72
Other Sorts:					
Sewing Machines	886	1,442	1,936	1,050	119
30 Agricultural Machinery ..	815	843	1,082	267	33
Mining Machinery	686	613	819	133	19
Textile Machinery ..	5,867	5,777	6,017	150	3
Others (including Electrical Machinery)	3,967	6,045	8,558	4,591	116
Total Machinery (including Sewing Machines) ..	**15,309**	**18,846**	**24,580**	**9,271**	**61**

A more detailed discussion of the export trade by groups and countries will be found in Subsection (B) on The State of the Several Branches.

Foreign Protected Markets

In regard to what are now foreign protected markets, the evidence both from witnesses and
firms is practically unanimous that the development of native industries in these countries and the
tariffs which have been imposed in the last thirty years have greatly restricted the British export
31 trade in many classes of engineering goods. The progressive development of the German tariff for
example has affected important branches of the British industry, and the continuous effects of the
last revision of the tariff, with the greater specialisation of duties and the increase of the rates of
duty, is regarded with apprehension by some witnesses.

This movement extends to practically all European countries and to the United States. It is recognised that the engineering development of foreign countries was inevitable and no complaint is made by manufacturers of the legitimate ambition of these countries to establish great engineering industries. This foreign development has been aided even if it has not been mainly created by tariffs, and it is believed that no great expansion of British trade in engineering products in these foreign protected markets can be anticipated, though such is the diversity of the engineering industries that by negotiation a useful exchange of certain products may be arranged and a substantial trade guaranteed for a long period of time.

Effect of Foreign Tariffs

The injury caused to various branches by foreign tariffs is explained in the evidence in various
ways. For example some manufacturers state that the market of the country imposing the tariff
is closed to them except in so far as the trade consists of specialities or of engineering products which
32 that country does not as yet make. The limits of trade upon this basis are becoming every year more
restricted. Even textile machinery, in which in certain lines the United Kingdom has for years had an undoubted pre-eminence, is now in most countries subjected to a heavy tariff. Moreover, foreign tariffs become more burdensome at every revision, not only because the actual rate of duty tends to increase, but because the classification is worked out with greater precision, with a view to the development of national industries. In all the group of central European countries, bound together by treaties, the engineering classification has been completely revolutionised, while the duties have been considerably raised, and although the United Kingdom enjoys most-favoured-nation treatment, that treatment affords no real protection to British interests. Mutual concessions made by foreign protected countries in negotiation with one another are arranged upon the basis of the mutual interests of the contracting countries without the smallest regard to the interests of the United Kingdom which are entirely unrepresented in any of these tariff negotiations. By means of minute classification the advantages which should be secured by the most-favoured-nation clause are made illusory, and British products remain to all intents and purposes subject to the general tariff of the foreign country and not to the lower tariff based upon conventions. Moreover, under existing

conditions the prospects of British trade under the most-favoured-nation treatment may be at any time injuriously affected by a commercial dispute between two European countries, which has no reference to the United Kingdom, but which does have the effect of cancelling the conventional rate which we get under the most-favoured-nation clause. 33

Instances of Loss in Export Trade

The evidence contains many illustrations of the injury done to the trade of the responding firms by foreign tariffs, but the official returns are so inadequate that it is quite impossible to state how far the experience of particular firms is common to the whole of their branch of the trade. A few instances may be quoted from the evidence :—

Commodity	*Observations of British Firms*
AUSTRIA—HUNGARY	
Economisers	Our trade altogether stopped. An English firm has now been licensed to manufacture in Austria itself.
Engines	Our trade reduced from 200 to 400 down to 25 or 30 engines a year.
Fixed engines	Our trade has almost entirely gone.
Machine tools	Our trade cut off by tariff.
Power looms for weaving	Tariff has seriously diminished our trade. 34
Threshing machines	Reduced our trade from 800 sets to 80.
Portable steam engines, threshing machinery	Rise of tariff has made it necessary to abandon our trade
FRANCE	
Brass and copper tubes	Our trade entirely gone within the last 20 years.
Cables	The duty closed the market.
Carding cloth machinery	Our trade lost.
Elevators	Rise of the duty has cut off our trade.
Locomotives	Can never export except under very special circumstances.
Machine tools	Tariff makes trade impossible.
Radiators	Formerly good business done; present tariff prohibitive.
Spinning and carding machinery	Lost since 1880.
GERMANY	
Agricultural machinery	Duties gradually closed the market.
Chaff cutters	Until 1880 good trade, and then cut off by the tariff.
Cranes	Change in the tariff classification complained of.
Fixed Engines	Trade has almost entirely gone.
Food-preparing machinery	Duty has almost annihilated the English trade. 35
Hydraulic machinery	Duties prohibitive, trade almost gone. Hamburg free importation.
Locomotives	Can never export except under very special circumstances.
Mining tools	Trade has been lost since tariff was raised.
Portable engines	Duty has driven us out.
Scythes	Since rise in tariff trade has entirely ceased.
Structural machinery	Trade lost through tariff.
Ventilating machinery	Until 1878 a large staff employed making ventilators, especially for the German market. Bismarck tariff stopped it suddenly.
ITALY	
Machinery	Tariff practically excludes English machinery.
Pumps	Under this duty very difficult now to do any trade.
Marine machinery	Business formerly done, but now impossible.
RUSSIA	
Cast Iron Pipes and Valves	Rise of tariff cut off the trade.
Ploughs	Formerly large plough trade has practically disappeared.
Wire rope	Tariff has destroyed our trade.
Machine Tools	Firm lost £2,500 a year since the rise in the tariff, or nearly 8 per cent. of total output. 36
Tugs	Tariff prohibitive.
UNITED STATES	
Motor Cars	Have sent cars notwithstanding the duty.
Tubes	High tariff against British tubes.
Cotton Heald and Wire Heald	Trade lost through McKinley and Dingley tariffs.
Economisers	Our trade altogether stopped. Works erected in U S. A
Electrical	Our export trade entirely ceased.
Hosiery and lace machines	Trade diminished since the tariff.
Mining Tools	Trade has been lost since tariff was raised.
Rock Drilling machinery	Lost since the McKinley tariff.
Wire Rope	Our business with U.S.A. has gone down from £15,000 a year to a merely nominal sum.
HAWAIIAN ISLANDS, PHILIPPINES AND PORTO RICO	
Sugar machinery	New 5% ad valorem duty cut off our trade.

37 **Indian, Colonial and Neutral Markets.**

In Indian, Colonial and neutral markets, foreign competition has greatly increased, and in spite of the expansion and demand for engineering products, British trade in these markets has developed more slowly than the trade of foreign countries. The tariff systems of these foreign countries, and especially the United States and Germany, coupled with their export organisation and preferential rates and subsidies, are considered to be of great utility in enabling them frequently to undersell the British manufacturer. The tariffs of the Colonies have also tended to diminish the demand for British goods, but where preference is effective it is much appreciated

Proportions of British and Foreign Trade in Empire Markets

The following table shows the importations of machinery and engineering products into Canada, Australia, New Zealand and British India for 1886, 1896 and 1906. The definitions of machinery and engineering products differ in the various countries at the various dates, but as far as the returns allow, a uniform definition has been maintained, that is to say the comparison covers, speaking generally, the engineering commodities dealt with in this Report:—

38 TABLE 5—IMPORTS OF MACHINERY AND ENGINEERING PRODUCTS INTO CANADA, AUSTRALIA, NEW ZEALAND AND BRITISH INDIA (in thousand £).

	1886			1896			1906		
	U.K.	Other Countries	Total	U.K.	Other Countries	Total	U.K.	Other Countries	Total
Canada* ..	40	408	448	70	805	875	250	4,029	4,279
Australia ..	617	125	742	1,114	410	1,524	1,971	1,161	3,132
New Zealand .	211	50	261	259	168	427	711	527	1,238
British India†	1,544	17	1,562	2,344	44	2,389	4,394	308	4,703
Total ..	**2,412**	**600**	**3,013**	**3,787**	**1,427**	**5,215**	**7,326**	**6,025**	**13,352**

* Years ending 30th June.

† Years ending 31st March. The figures do not include Electrical Apparatus, etc., or Typewriters in 1886 and 1896, and Sewing Machines are not included in 1886.

39 It will be seen that twenty years ago 80 per cent. of the imports into these British Empire markets came from the United Kingdom; the percentage is now 55. The importations from other countries, practically all foreign countries, have on the other hand increased from 20 to 45 per cent. The imports from the United Kingdom have trebled in twenty years; those from other countries have increased tenfold.

40 In Canada the engineering industry has made great strides, and in regard to agricultural machinery in particular Canada shares with the United States the best markets of the world, but there remains a vast number of engineering products in which a preferential arrangement both with Canada and other Colonies would, it is believed, be of immense advantage to the British exporter. Engineering firms in the United States and Germany have a capacity of production much in excess of their own requirements and are making great efforts to gain a footing in the various British Colonies. For motive power plants of large size active competition is met with in South Africa from United States and Continental engineers. In steam engines severe foreign competition has been experienced in Africa, India, Australia, New Zealand and Egypt, chiefly from France, Germany and the United States. United States-built mining engines are used largely in South Africa. Stationary steam engines for factories from Germany and the United States are used in South Africa and India, and traction engines are imported into the Australian Colonies from the United States. In locomotives competition from the United States has been at times very severe in Canada, New South Wales, New Zealand, India and South Africa. In India the German competition has also been at times felt. In one case mentioned German makers competed successfully in Canada with the firm giving evidence. In Egypt, the Belgian competition has been for some years extremely severe. In electrical material foreign competition is said to be keener in neutral and Colonial markets than in the British market, but the preference has been most beneficial in respect of some British electrical goods.

41 The following are a few of the examples given of the British engineering products injuriously affected by Colonial tariffs :—

Effect of Colonial Tariffs

Australia—Boilers, colliery plant, engines, gas engines, light draught vessels, marine engines, oil engines.

Canada—Harvesting machinery, locomotives, milling machinery, mining tools, paper-making machinery, steam engines, boilers, threshing machines, pumps, steam navvies, &c.

Egypt—Irrigation machinery.

42 In the Colonial markets however the position of the British manufacturer has never been so undisputed in regard to Engineering as in regard to the products of other industries. While, for example, the Canadian preferential tariff has been of great advantage to the British textile and other industries, the effect of that tariff has been less marked in regard to engineering because the United States occupies a predominant position in the import trade of Canada. The experience of British engineers in Canada is, according to the evidence, likely to be reproduced in regard to other Colonies and Dependencies, and witnesses and firms are agreed as to the great importance of this fact because the growth of successful competition with British engineering products in the Colonies tends to stamp upon the new industries of those Colonies methods and processes which can be best aided by foreign as distinct from British imports. Once new factories are fitted with foreign machinery and the workers have become accustomed to this class of machinery it is extremely difficult for British exporters to get a stronger hold on that market. A typical illustration may be found in the milling machinery of Canada. There it is almost generally agreed that the British milling machinery is the finest in the world, yet practically every mill in Canada is fitted with United States machinery.

Preference The importance of preference therefore in relation to the Engineering industry and in relation through that industry to the general industrial and commercial progress of the Empire, is strongly insisted upon by witnesses and firms responding to the forms.

Patents 43 Much is said in the evidence of the injurious effects of the old Patents legislation. As regards the new enactment (1907) and especially the manufacturing clause it is anticipated that considerable benefit will accrue to British industry. Most witnesses agree that it should increase employment in this country. Makers of textile and other machinery say they are in negotiation for foreign inventions which are patented in this country.

Profits The growth of competition in the home market and in Colonial and foreign markets has had its effect upon profits. Witnesses maintain that in order to obtain an adequate return it is now necessary to work far harder and do a much larger turnover than a few years ago. Moreover the possibility of obtaining this return is becoming more difficult from the very nature of the progress made by foreign countries. Their industries have grown in many branches far more rapidly than those of the United Kingdom. They have a larger output ; standardisation of products has proceeded farther ; the cost of production is necessarily reduced and at times of comparative depression foreign firms can dump their products in the United Kingdom or other markets on terms which make it difficult for the British manufacturer to compete.

Labour 44 But this progressive diminution in the net profits of the Engineering industries has been accompanied by the maintenance on the whole of steady and even improving conditions of employment of the working classes. Hours of labour have been reduced, wages have on the whole increased. Though firms giving evidence are of opinion that on the whole the British workman is as efficient as the foreign workman, the evidence points to the conclusion that the relatively higher wages and shorter hours of labour in Great Britain are not accompanied by a proportionate increase in the efficiency of the work. Thus the improved conditions of labour which no one is found to deplore is held to be tantamount in effect to an addition to the cost of production of the British manufacturer and tends in competition with other countries to reduce the net profits of the industry and the return to the large number of the general public who are now shareholders in the leading concerns.

In a word, the Engineering industry as a whole shows continuous expansion but the conditions are becoming progressively more difficult owing to the more rapid advancement of foreign countries and the greater severity of their competition in every market.

Duties A great variety of suggestions is made in the evidence as to the duties upon foreign engineering products imported into the United Kingdom. In some cases no duties are desired because there are no competing importations or for other reasons. The duties most generally

45 recommended range from 5 to 15 per cent.; upon some articles such as yacht-boats and motor-boats, which are classed as "luxuries," much higher duties are suggested. In other cases it is proposed that the British duties should be the same as those imposed by the foreign country upon the similar British manufactures. Another proposal is that the duty should be the difference in the price charged to the consumer in the country of production and the "dumped" price charged within the British Empire—an adaptation of the Canadian anti-dumping measure. Material which has practically no labour on it should, it is suggested, be imported free of duty.

It is pointed out generally that the "advantage of protection" would arise not merely from 5 or 10 per cent. duties, but from the fact that under a tariff system there would necessarily be commercial treaties and an adequate Government organisation, say a Ministry of Commerce, for continuously watching the developments of trade here and in competing countries, the effect of home and foreign tariffs, &c. Such an organisation would, it is thought, bring a number of weak points to the front and tend to the improvement of British methods of production. Foreign tariffs it is found tend to efficiency of production. This view is expressed by one witness in the following words:—"By securing the home markets they prevent violent fluctuations in output
46 and render more certain the continuous employment of capital, machinery, labour, and organisation on an efficient basis.

Effect on Prices

Most of the witnesses do not anticipate any material increase in prices as the result of moderate duties on engineering products. They look for increased British output and lower cost of production. As regards semi-manufactured importations many engineering firms say they would be unaffected inasmuch as they use British steel, iron, copper and other materials and they do not anticipate increased home prices for these commodities. Engineers who use German, Belgian, United States or other foreign materials say they do so because they are cheaper or better adapted to some particular purpose, but all could be made equally well at about the same price in this country under any system which gave greater security of trade and encouraged progressive developments. The possible effect of increased importations upon prices is also noted: "If we want forgings after we have pulled down our appliances and the men have been turned to other trades we shall be at the mercy of Germany, and they will be able to charge us exactly what they like for them." If, says another witness, foreign manufacturers "once get hold of the English market and practically stop our own rolling mills, it would be very easy for them afterwards to increase their prices." Where want of enterprise is shown by British iron manufacturers
47 and steel founders it is said to be often due in part to the absence of a prospect of reasonable return on expenditure for new plant, &c. "The effect of a duty in this case (on plates) would be rather to encourage further expansion of trade and reduce the cost of production by keeping the works more fully employed: A trade that is liable to be cut into by foreign combinations against it at any moment has not the heart to expand." "The cost of an article," says another witness, "and the price at which it can be sold depend upon the volume of output inasmuch as the expense of administrating non-productive capital and the disposition of output are practically constant over a large range of production." An example is given of a manufacturer who fixes his cost charges on an estimated output of £100,000 a year. In the event of the increased production to £200,000 a year he will be able to sell this £200,000 worth of production at a very considerable decrease in price and still stand in as favourable a position of profit as when selling half the output at a larger price. "I have not the slightest hesitation in saying," remarks a maker of agricultural machinery, "that with a home market safeguarded" (he suggests a 10 per cent. duty and a 5 per cent. preferential duty) "harvesting machinery would be sold by British makers cheaper to farmers than at present. The 'dead charges' in working this branch of industry are not proportionate to the amount of sales. As a matter of fact my firm did an increase of
48 business of upwards of £15,000 in 1903 over the business of 1902 for a less cost of 'dead charges,' and in 1906 an increase of £28,000 over the business of 1905 for approximately the same 'dead charges.'" The opinion of another representative firm is expressed in these words:—"In our present business we could do more work (without materially increasing our administration charges), to the extent of 10 per cent. and possibly in some departments to the extent of 20 or even 50 per cent., but not generally. We should not require a bigger staff to get out a larger amount of work. If wages rose 10 per cent. and we were enabled to increase our production very largely, one thing would counterbalance the other. The object of a tariff would be to keep out unfair dumping competition and allow us to compete for and execute many of the orders we now lose."

Effect on Labour

"Our firm," says one witness in the electrical industry, "employs some 2,000 men and that means a living for some 5,000 people; with a reasonable protection we could easily double that." "If duties were put on," says another witness, who names duties of between 5 and 10 per cent., "we should have the advantage of getting the British work done in British workshops, and supporting our own people instead of supporting other folks who take no interest at all in our affairs,

and bear no share of our burdens, local or Imperial. It would also mean better wages for the 49
workpeople which would more than compensate them for any slightly increased cost of living." "If we lost the trade of this country," says another witness, "it is not a question of whether a man is paid 20s., 30s., or 40s. a week, but whether he will get paid at all. It is not a question of the value of the food that he will consume, but it is a question of whether he will have the money to pay for it. It is more a workman's question than a manufacturer's."

Objections to Duties

On the other hand some engineering firms express strong objections to duties upon machines and materials used in their industry. One firm says that of the machinery it uses probably one-half or £30,000 worth is of German, United States, Belgian or French origin and the cheaper price and greater adaptability of these machines has enabled them to make a better article—in this case motor cars, &c.—at the same money or the same article at less money. Another firm, makers of textile machinery, who speak of foreign competition in their own home trade as a negligible quantity, desire no duties or preference, the latter of which "would only act as a somnolent." Their desire is to see mining royalties abolished.

50

(B) STATE OF THE VARIOUS BRANCHES

(1) Structural Engineering, including Construction Work, Bridge Building, Water Works, Sewage Works, Refuse Destructors, Sanitary Work, etc.

Constructional Steel

Dumping

There has been a largely extended use of girders, beams, joists and pillars for constructional purposes but it is only within recent years that British makers have taken up this branch of manufacture so as to compete seriously with German and Belgian importations. In this branch of the industry the necessary conditions for foreign dumping prevail. Products can be turned out
in large quantities, size and gauges can be to a great extent foreseen and there is a relatively 51
smaller sphere for specialities. One firm state that they have been able to obtain manufactured steelwork of all descriptions from Belgium, landed here and delivered to any site in the United Kingdom at from 20/- to 25/- a ton cheaper than similar steel-work can be obtained in the United Kingdom. Another manufacturer says that rolled steel joists have been obtainable from abroad at from 20/- to 22/- less than joists made in England. Roof cables are said to have been delivered at Newcastle from Belgium at from 5/- to 15/- a ton below the English price. One firm state that for steel workshops for erection in South Wales they were the lowest British firm tendering at £5,100, while a Dusseldorf firm took the order at £4,450. Many other instances are given by manufacturers of the lower prices at which steel joists can be obtained from Belgium and Germany. A firm of bridge makers, while complaining of the competition of imported steel girders, roofs, etc., state that their home trade is protected in the main by engineers who specify materials of British manufacture. The decline in the imports in 1907 is largely attributed to home activity in the exporting countries. Thus during the "boom" the lessened severity of Belgian and German competition and the increased British demand for constructional steel stimulated the British industry; but in the depression now prevailing (October 1908) the evidence shows that "American and
Continental makers have been taking orders and quoting prices which have seriously affected our 52
markets in this country and in competing against them we have had to accept altogether unremunerative prices to secure orders." The tendency is said to be towards greater competition from foreign makers in all our markets both at home and abroad.

Much evidence on this branch of the subject is to be found in the Iron and Steel Report of the Tariff Commission.* Among the instances there given is one showing that German steel joists which at the prices for pig iron then quoted could not have been produced in the German works at less than 89 marks (£4 7s. 6d.) per ton, were being offered to English buyers f.o.b. Antwerp, at 82½ marks (£4 1s. 1½d.) less 2½ per cent. The German home price for these joists at the time was 105 marks (£5 3s. 3d.) per ton, on rail at works.

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* Report of the Tariff Commission Vol. I. Iron and Steel Trades. London: P. S. King and Son. 2s. 6d. Popular Edition 3d.

53 The official returns supply information as to a part only of this branch of the Engineering Industry, viz. girders, beams, joists and pillars of iron and steel. The following table compiled from the Board of Trade Returns deals with imports :—

Imports

TABLE 6.—UNITED KINGDOM. IMPORTS OF STEEL GIRDERS, BEAMS, JOISTS, AND PILLARS (in thousand £)

	Imports			Consignments			
	1893–97	1898–02	1903–07	1904	1905	1906	1907
Germany	—	—	—	330	325	453	348
Netherlands	101	109	188	18	10	10	17
Belgium	344	587	573	422	397	377	191
France	—	—	10	7	3	21	14
United States	1	24	2	0	3	4	4
Other Countries	1	7	5	0	2	0	0
Total	**447**	**727**	**778**	**777**	**739**	**866**	**575**

54 The importation has, it will be seen, increased by an average of 74 per cent. in ten years. It is only when we take the corrected returns issued since 1904 that we see the true sources of these imports. The returns on the older basis showed no imports from Germany and large importations from Holland and Belgium. It is now apparent that nearly the whole of the imports attributed to Holland and a large part of those attributed to Belgium come from Germany, which is now the chief source of these imports.

55 The exports of structural steel were not separately recorded before 1904. The increase in the last four years is 145 per cent. The chief markets are India and South America.

Exports

TABLE 7.—UNITED KINGDOM. EXPORTS OF STEEL GIRDERS, BEAMS, JOISTS AND PILLARS (in thousand £)

	1904	1905	1906	1907
Japan (including Formosa)	8	14	28	48
Brazil	9	7	47	56
Argentine Republic	14	64	239	170
Other Foreign Countries	73	117	132	186
Total to Foreign Countries ..	104	202	446	460
Cape and Natal	89	42	83	24
British India	156	241	321	296
Australia	19	19	38	54
Other British Possessions	43	49	96	170
Total to British Possessions ..	307	351	538	544
Total	**410**	**553**	**984**	**1,004**

56

(2)—ELECTRICAL

State of the Electrical Industry

Great Britain is spoken of as the "home of the electrical industry," and in the early eighties this country was regarded as being in the forefront of electrical development. The dynamo, the arc lamp, the electro-magnet, the Swan lamp, and the induction coil originated in this country.

57 In regard also to manufacture and commercial energy the lead in many directions was British. But despite this lead the British electrical industry remained practically stagnant for many years largely, it is said, in consequence of obstructive legislation respecting electric lighting and traction and power undertakings while foreign manufacturers being free from legislative restrictions profited by British initiative and capital, and aided by their tariff systems built up a solid and progressive business in their own countries as well as in the United Kingdom.[*] Some of the legislative impediments have been removed and British manufacturers have taken full advantage of their opportunities although the industry has had to be driven ahead in the teeth of the keenest foreign competition. Some experts have expressed doubts whether, in view of the strong position of the foreign industries, British manufacturers can now ever effectively compete with their foreign rivals, but the more general impression is that, given more equitable conditions, considerable progress may be anticipated. The evidence shows that the highest technical skill is at the command of the British electrical industry.[†] British firms have engaged men of the most eminent scientific ability of various nationalities and the administration is spoken of as "at least equal to that provided by our foreign competitors." And yet the condition of the British industry is held to be most unsatisfactory in some of its essential features.

The German Industry

58 No statistics exist to permit of exact comparative statements as to the progress of the electrical industries of various countries. Sir Francis Oppenheimer, British Consul-General for the Frankfort district, reported in 1907 that the number employed in the German electrical industry increased from 72,500 workpeople in 1904 to 95,000 in 1906. This figure is presumed to relate solely to those employed in electrical manufacturing concerns and does not include employés in chemical works, electric tramways, electric lighting and kindred enterprises. According to Mr. E. Garcke, the comparative British figure for 1907 would be 45,000. It is estimated that 300,000 persons are employed in all sections of the electrical industries of the United Kingdom and that the corresponding figure of employés in Germany would be "very much larger." Sir Francis Oppenheimer adds that "the confidence of the country" in the future of the German electrical industry is also shown in the Stock Exchange quotations for the following electrical concerns for which the latest quotations are here given—

59

Name	Last Dividend	Market Quotation 14 Dec. 08, ex dividend
	Per cent.	
Akkumulatoren Fabrik	12½	199·25
Allgemeine Electricitäts Gesellschaft	12	219
Bergmann's Electricitäts Gesellschaft	18	265·80
Berliner Electricitäts-Werke	11	158
Brown Bouveri	11	172
Lahmeyer Electricitäts Werke	7	117
Siemens-Schuckert-Werke	5	116
Siemens and Halske	11	204

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[*] In his "Progress of Electrical Enterprise" Mr. Garcke traces the obstructive effect of such enactments as the Tramways Act (1870), the Electric Lighting Act (1882), the Light Railways Act (1896), as well as the Government restrictions in regard to telephones, the obligation imposed upon promoters to overcome the veto of local authorities and the risks "incompatible with pioneer enterprise," which he considers to be involved in our Parliamentary procedure. Of the regulations of the Electric Light Acts of 1882 and 1888 Mr. Garcke says that they were "owing to their parochial limitations, totally unsuited to the generation and supply of electricity on the large scale which could alone secure the highest economy." On the right of veto, Mr. Garcke says that "according to the Speaker of the House of Commons, it has worked a great deal of mischief, has been most improperly used for the purpose of extorting all sorts of terms and conditions, and has subjected promoters to liabilities and disabilities which were never contemplated by Parliament." This power of veto "is employed against local authorities owning and working tramways as well as against companies, for a municipal tramway system cannot be extended into the area of an adjoining local authority without the consent of the latter, and such consent is rarely obtained without a bargain, more or less mercenary."

[†] Mr. W. M. Mordey, President of the Institution of Electrical Engineers, in his presidential address (November, 1908) said:—"In my opinion there is no more justification for the statements about our scientific and technical education being behind other countries than for the statements about the backwardness of our electrical engineering."

61 *British Profits*

In Mr. Garcke's "Manual of Electrical Undertakings," it is stated that in the last two decades the number of electrical manufacturing companies registered in the United Kingdom has increased from 24 with a subscribed capital of £6½ millions to 312 companies and £41¾ millions. These figures include agencies of foreign firms. In 1900-1 43 British companies made an average profit of 7·5 per cent. on a subscribed capital of nearly £12 millions while in 1908 143 companies earned 5·43 per cent. on £31½ millions. A more detailed analysis of the profits of these 143 companies shows that no dividend was paid on £2 millions of ordinary capital and on more than £2¾ millions of preference capital. Commenting on the course of profits in the British industry Mr. Garcke says in his *Progress of Electrical Enterprise* "The dominating cause of the reduced profits is the existence, in actual or potential form, of foreign competition. The effect of this rivalry is not to be measured by the volume of importation, but by the manner in which undercutting quotations given by foreign firms bring down the level of prices. The mere possibility that cheap surplus manufactures may be obtained from abroad has a depressing effect on tenders. Some of our ablest industrial men consider that it pays better to have a warehouse than a factory—that there is less anxiety and more profit in selling foreign-made goods than in employing British labour."

62 In respect of labour conditions, it is largely held by manufacturers that foreign countries have an advantage and in the foreign contracts of municipalities it is not possible to insist upon the Trade Union principles which are rigorously applied in England. Under conditions of fair competition, witnesses and firms nearly all say that they are not in the least afraid to meet foreign competitors, but partly owing to the facilities foreign firms possess for undercutting English firms, partly to the fact that foreign firms are often willing to make a sacrifice with the view of establishing on a firm basis their British connection, they take contracts with which British manufacturers cannot compete.

Municipal and Government Contracts

This foreign competition has in the opinion of witnesses been considerably assisted by the action of British municipalities in placing contracts abroad. It is indeed stated that this action of British municipalities has "more than anything else been the making of the German electrical industry." Some of these municipal contracts are, it is alleged, given to firms with English names in the belief that they are English firms, when they are really German firms or the agents for German manufacturers.

63 When on the other hand British firms have sought business in Germany they "have been refused even the forms of tender unless they could guarantee that the goods would be manufactured in Germany." Where there is no compulsion for foreign State Departments and public bodies to purchase their goods locally "it is nearly always obligatory that a preference of from 10 to 15 per cent. is given to local manufacturers; and foreign firms as a rule cannot tender at all except through an agent residing in the country." In Australia municipal bodies and harbour and tramway authorities, working under franchises, are usually required to obtain special Government permission before purchasing goods from any other country. The New South Wales Government is said to have placed recent orders locally at prices from 10 to 15 per cent. above those at which they could have been imported.

Illustrations

Striking illustrations are given in the evidence of the injury done to the British industry through the placing of municipal contracts abroad. It is estimated that the municipalities of this country spend about £30 millions per annum of which about £1½ millions is paid for electrical plant, machinery, fittings and supplies. Not less than one half of this total, it is calculated, goes to foreign manufacturers involving wages of manufacture of not less than £350,000 per annum or continuous employment for from 4,000 to 5,000 skilled workpeople. One witness says:—"Every
64 one of the contracts which we give to foreign firms or for the purchase of foreign goods could equally well have been filled by British manufacturers. These same municipalities almost without exception are now at their wits end to find work for masses of unemployed, and here they have during the past year been paying the wages of foreign workmen to an abnormal extent. . . As the same policy controls the placing of all their contracts there is no doubt that the total sum going to foreign workmen is a prodigious one."

Instances are given in the evidence of contracts for electrical productions placed abroad by public bodies in London, Manchester, Glasgow, Hull and other places although "the difference in price between English and foreign tenders has been quite insignificant." One of the cases cited in detail is that of the Manchester Corporation where to make a nominal saving of "a few thousand pounds" a contract valued at £100,000 was given abroad with a loss of £15,000 to £20,000 in wages alone in the British electrical industry, not to speak of the losses in the auxiliary industries of this country. Belgian competition was most felt when the Belgian works had to find an outlet at any price. On a tender for St. Pancras of £12,000 in which the witness's firm was the lowest of six English manufac-

65 turers, a German company quoted £11,000 but a Belgian firm quoted £7,000 and got the contract. "They made no profit on it and have since reduced their capital by about 5 to 1, but none the less we suffered at the time. The market in this country being open, the Belgian probably thought a few contracts at any price would introduce them quickly; but had our market been protected they would never have been tempted to dump here." English manufacturers, it is urged, "would have been encouraged by such orders to look forward optimistically to the enlargement of their works instead of their retrenchment. The loss of these contracts meant also a loss of knowledge and experience to our working men. If this short-sighted policy is continued the discrepancy between the price at which the foreigner and the home manufacturer can respectively produce must increase. Moreover the contribution to the rates must be considered, and in case of profit, to income tax, which the English manufacturer pays but which does not enter into the calculations of the foreign manufacturer."

Other Contracts Placed Abroad

66 Other London and provincial contracts placed abroad are quoted in the evidence. According to the 1908 lists, the contracts for dynamos and alternators alone represented a total capacity of nearly 108,000 k.w. Of this total, more than 87,000 k.w. (or 81 per cent.) is in plant of foreign origin. A quotation is also made from the *Electrical Times* for November 26, 1908, in regard to many other instances :—"There are Sulzer engines and Kolben sets elsewhere; there are Lahmeyer sets at Hull; there are enormous imports of A.E.G. material to the N.E. district. We have also quite left out of reckoning the myriads of German metallic glow lamps, arc lamps and motors; of American meters, transformers and tramway material. We pass over the German annexation of our colliery and millwork. We take no count of industrial defeats in South Africa, South America, Spain and elsewhere. Still, take it on dynamos and alternators for generating stations alone, they are a good example. Can we show anything approaching the above list in Berlin, Hamburg, Frankfort, New York or Chicago?"

Benefits to the Foreign Manufacturers

67 Emphasis is laid in the evidence upon the assistance which this placing of British contracts abroad gives to the foreign manufacturer to cut out the British manufacturer in the British home market. "It has a double effect, for while it increases the skill and efficiency and financial stability of foreign industries, it weakens the British hold upon the British home trade. Again, in some cases, where the foreigner has done this municipal work at a somewhat lower price than the British tenderers would have done, experience shows that on 'repeats' and extensions the prices have been higher than British prices, and municipalities have had to accept these higher prices because of the difficulty involved in adapting British machinery to existing foreign plant. Then the encouragement of foreign industries by British municipalities has done much to spread the impression that German work and German plant is superior to British—a sentiment which is a good-will of great value to the foreigner, not alone in the British market but also in Colonial markets. Another feature—and this I regard as being of extreme importance—is the financial side of the question. By giving their contracts abroad, British municipalities strengthen the hands of foreign financial institutions in their policy of reserving their own work for their own home industries. German electrical undertakings are financed by, and remain in the most intimate association with the German banks, and whenever German financiers finance undertakings abroad it is stipulated that the plant and machinery for these undertakings shall be produced in Germany. In the United Kingdom there is no such association between the financier and the industrial, and no such stipulation occurs. While, therefore, there is considerable financing of foreign undertakings by British capital, nothing like the corresponding benefit accrues to British industry."

68 It is strongly urged that any monopoly or special privileges enjoyed by the electric light and power stations under municipal control should be accompanied by a corresponding obligation for the benefit of British industry and labour. As in Germany, it is suggested that municipalities and such corporations as tramway, railway, gas and water companies enjoying public charters should be compelled within reasonable limits to favour the home manufacturer and workman. As it is, British manufacturers are said to have been compelled to accept prices set by foreign competitors although in many cases those prices are estimated to be from 10 to 25 per cent. below British cost and indeed amount to no more than the cost of the raw material and labour employed.

Inter-urban Traction and Power

In regard to the legislative difficulties that still remain, it is suggested in the evidence that much might be done by "a broader appreciation on the part of the legislature of the social and industrial advantage of more comprehensive schemes of electric traction and power supply. The natural conditions here are exceptionally suitable for taking advantage of electrical progress. Our narrow parochial policy has, however, put back the construction of probably some thousands of miles of light railways, and of large main power stations for supplying electrical energy on a wholesale scale. By granting local municipal monopolies, the legislature has 'picked the eyes out of the mine,' to borrow an expression common among mining engineers, that is to say, there has been no statesmanlike

69 provision for the orderly and systematic development of the country's opportunities of benefiting by the practical application of electrical science. Consequently throughout a country which in numerous districts has clusters of towns ideally situated for light railway connection, there are many inconvenient gaps in the track, and there are many sites exceedingly well adapted for industrial settlement lacking the attraction of cheap electric power."

Cables

The following classes of cables are dealt with in the evidence :—(1) Cables for distribution of electric power and light ; (2) small cables for house work ; (3) submarine cables ; (4) telephone work. The progress and development of the cable trade are attributed to the fact that the business was founded for the purpose of submarine telegraphy. Foreign competition has much increased. A few years ago "practically none of the home trade in the manufactured articles was done by foreigners." Whereas in the year in which the evidence was given "they did at least £200,000 worth of our trade chiefly in smaller wires." The competition is chiefly German. The British export trade has also been much interfered with by foreign tariffs. The German trade of one firm giving evidence "absolutely disappeared" when the present German duties were put on. The same applies to France, where there were extensive British contracts ; that market is now closed 70 to the contracting firm. Other Continental markets are now similarly protected. In Canada the United States is firmly established largely by reason of the financing of Canadian companies by United States capitalists.

Incandescent Lamps

The incandescent lamp industry is comparatively new and the demand has grown enormously, but the volume of British business has not increased in the same ratio as the demand. The consumption in the United Kingdom is now probably about 20 million lamps per annum, of which about 7 millions are imported. The Colonies probably use 4 to 5 millions, out of which Great Britain supplies, say, 1 million. The consumption is increasing enormously, because once a lamp is installed it has to be replaced periodically. Notwithstanding this enormously increased demand, it is said that few of the undertakings that started making incandescent lamps in England in 1893 have survived, and these only because they endeavoured to produce a superior article, and appealed, not quite without success, to the patriotism of English consumers. The advent of the metallic filament lamp is a feature of the highest importance to the industry and under equitable fiscal conditions and by aid of the new Patents Act it is hoped to retain this trade for the British industry.

71 Labour is cheaper on the Continent, while the cost of materials and installation is said to be about the same here as abroad. The foreign maker has no natural advantages over the English maker, all the materials being obtainable in every country where lamps are produced, except platinum which is obtained in a common market. The industry is not thought to furnish proof that superior technical training has given the foreigner any advantage. Much theory in this branch of the industry abroad has tended to kill individuality, and any superior theoretical training of the foreigner has been more than counterbalanced in this country by advantages on the practical side. Profits are said to have decreased materially in relation to turnover. All branches have become less remunerative after they have been in existence sufficiently long to become standardised. New ideas and new applications or special requirements alone permit reasonable profits for a short time.

Instances are given in which lamps have been sold in this country at under-cost prices in order to kill British competition, and municipalities and other corporations who are very strict when placing contracts as regards the rate of wages paid to workers and the regulation and management of factory buildings have snatched at these offers without considering the harm thereby done to the British 72 workman. Foreign-made lamps are said to be sold under English names or by foreign concerns whose style suggests home manufacture.

Carbons

The advent of electric light and power has created a very large demand for carbons and the United Kingdom possesses the best raw material. The conditions therefore appear to exist for the foundation of an industry of the greatest importance. The failure to establish such an industry is attributed by witnesses to the absence until 1907 of a compulsory manufacturing clause in the British Patent Law as well as to the general backwardness of the electrical industry in the United Kingdom. This, it is said, gave the German manufacturer a "grand start." The good prices obtained enabled him in a few years to pay off the cost of his installation. He had trained cheap labour and when a serious attempt was made to establish an English industry it had to be done in the face of difficulties which are described in the evidence. Heavy losses were incurred by British firms, and foreign manufacturers while maintaining fairly well their prices at home reduced their prices in the United Kingdom, "with the avowed object of making us shut down our works." The price at which foreigners were selling in this country is said to have been the absolute cost price of material, plus labour, without any general expenses or profit added. Particulars are also given in the evidence of the disadvantages under which this trade suffers from transport rates. 73

Carbon Filaments

The manufacture of carbon filaments for the ordinary incandescent lamps is an English industry by itself. Germany can supply itself; Austria and the United States can supply themselves in part. There is no want of raw material in the United Kingdom and manufacturers say that carbons can be produced more cheaply here than they can in foreign countries but that with the unfair advantage given to the foreign manufacturer in the British market it is almost impossible to make the industry pay. The British manufacturer has no encouragement to find labour and train it—a tedious and expensive process. The special encouragement of this manufacture is further advocated on military grounds. It is held to be of vital importance that we should be able to supply our own wants for the Army and Navy. The industry is said to have benefited from the Canadian preference.

Electrical Fittings

74 The manufacture of electric supplies which was flourishing up to about 1895, has since considerably declined. A number of English firms produced fittings of admitted superiority and the English Potteries supplied a considerable amount of raw material for such fittings which were better than the foreign production. More than one-half of the trade in this country is said to be supplied from abroad but the official returns give no definite information on this point, the identity of this item being lost in the "unenumerated" group. The estimate of one witness is that the annual British consumption is of the value of from £300,000 to £400,000 of which about one-half is supplied from abroad and the proportion of foreign to British is increasing. Germany is said to supply fittings exclusively made for this and the Colonial markets. In electric lamp holders, switches, fuses, and cut-outs, the English manufacturer cannot, it is said, compete with the German.

Character of the Import Trade

The many changes in the form of the official returns relating to the imports of electrical goods make any comparative analysis impossible for a number of years. The character of the import trade at the present time is shown in the following table of imports according to countries of consignment.

75 TABLE 8.—UNITED KINGDOM. DETAILED IMPORTS OF ELECTRICAL GOODS AND APPARATUS, OTHER THAN MACHINERY AND TELEGRAPH AND TELEPHONE WIRE IN 1906 AND 1907, ACCORDING TO COUNTRIES OF CONSIGNMENT (in thousand £)

76

	Electrical Wires and Cables, Insulated				Telegraph and Telephone Cables		Telegraph and Telephone Apparatus		Unenumerated		Total	
	Rubber, insulated*		Insulations other than Rubber*									
	1906	1907	1906	1907	1906	1907	1906	1907	1906	1907	1906	1907
Sweden	—	—	—	—	—	—	129	92	1	1	130	93
Germany	46	61	32	62	115	153	67	32	280	360	540	668
Holland	1	5	—	—	—	1	—	—	14	16	15	22
Belgium	9	8	—	—	9	8	148	108	29	28	195	152
Italy	10	8	—	—	—	—	—	—	—	—	10	8
France	—	—	2	—	51	61	16	16	96	102	165	179
United States	5	2	25	2	—	—	—	—	48	58	78	62
Other Countries	3	2	4	9	7	11	7	10	32	32	53	64
Total	**73**	**86**	**63**	**74**	**183**	**234**	**368**	**258**	**500**	**596**	**1187**	**1248**

* Other than Telegraph and Telephone Cables.

Imports of Electrical Machinery

77 The official returns contain no record of the imports of electrical machinery before 1903 and of other electrical goods before 1900. In 1907 the total imports of electrical machinery amounted to £603,000, of which Germany, Holland and Belgium provided £359,000 and the United States £186,000. Since 1903 there has been a decline of £120,000 in imports from the United States synchronising with the establishment of works in this country by United States firms. The imports from other countries have increased £168,000 since 1903, chiefly from Germany. The detailed figures are given in Table 20 (Sec. VI.).

Other Electrical Imports

The separate classification of electrical goods other than machinery began in 1900. Since that year the returns show considerable fluctuations due entirely to the United States trade. The erection of works in this country by United States firms has been accompanied by a large decline in imports from that country which fell from £833,000 in 1900 to £62,000 in 1907. The imports from other countries have increased in the same period from a total of £433,000 to £1,186,000 or £753,000 of which Germany, Holland and Belgium account for £563,000. The detailed tables are in Table 21 (Sec. VI.).

78 Nearly one half of the import trade, it will be seen, is still unclassified, thus defying analysis as in so many other branches of the engineering industry. It is obvious however from the evidence that these unenumerated items must include lamps, fittings and carbons. The chief enumerated items for 1907 are telegraph and telephone cables (chiefly from Germany), £234,000; other electric wires and cables (also chiefly from Germany), £160,000; telephone and telegraph apparatus (chiefly from Belgium, Sweden and Germany), £258,000.

Character of the Export Trade

Telegraph Wire and Apparatus

For the last five years the export of electrical goods of all kinds other than machinery has remained stationary at about £2½ millions. Prior to 1902 the average exports increased from just under a million in the period 1886–89 to £3,501,000 in 1900–02. Nearly the whole of this increase took place in the last period and is due almost entirely to the development of cable enterprise affecting the exports to Madeira, Azores, the United States and Canada. The total for this group, Telegraph Wire and Apparatus, averaged £2,929,000, in the years 1900–02, which is far in excess of any previous period. The increase as compared with the period 1895–99 is £1,923,000, of which £467,000 consists of increased exports to Portugal and Possessions; £299,000 to the United States; £286,000 to Australasia and £314,000 to Canada. 79

Details of these exports are given in Table 37 (Sec. VI.). This table includes also figures for 1903 onwards, but these are not strictly comparable with the figures for earlier years owing to the changes of classification. The item Telegraph Cables does not appear separately in the returns until 1903; prior to that date it was included with Telegraph Wires which are excluded since 1903.

The present position of the export trade in Electrical Goods and Apparatus (other than Machinery) is shown in the following table. No account is taken in this table of Iron and Steel Telegraph Wire for which no separate return is now issued. The preponderating exports are, it will be seen, telegraph and telephone installation work.

80

81 TABLE 9.—UNITED KINGDOM. DETAILED EXPORTS OF ELECTRICAL GOODS AND APPARATUS, OTHER THAN MACHINERY AND TELEGRAPH AND TELEPHONE WIRE, IN 1906 AND 1907 (in thousand £)

82

	Electric Wires and Cables, Insulated: Rubber insulated*		Electric Wires and Cables, Insulated: Insulations other than Rubber*		Telegraph and Telephone Cables		Telegraph and Telephone Apparatus		Unenumerated		Total	
	1906	1907	1906	1907	1906	1907	1906	1907	1906	1907	1906	1907
Russia	1	3	23	0	31	3	—	—	6	3	61	9
Iceland and Greenland ..	—	—	—	—	60	—	—	—	—	—	60	—
Germany	—	—	1	28	—	—	—	—	—	—	1	28
Portuguese West Africa..	—	—	—	—	395	21	—	—	—	—	395	21
China	10	10	—	—	—	—	5	4	18	25	33	39
Japan	42	52	19	9	—	—	—	—	46	23	107	84
United States	—	—	—	—	53	407	—	—	10	5	63	412
Brazil	—	—	—	—	75	53	13	23	22	18	110	94
Argentine	13	11	27	8	62	25	38	40	54	47	194	131
Other Foreign Countries..	16	40	23	41	404	231	63	56	81	93	587	461
Total Foreign Countries	82	116	93	86	1080	740	119	123	237	214	1610	1279
Gibraltar	—	—	—	—	11	32	—	—	—	—	11	32
Cape and Natal	23	25	19	23	35	353	15	7	88	51	180	459
British East Indies ..	51	56	37	53	14‡	3‡	13	13	86	108	201	233
Australasia	29	55	24†	24†	60	67	12	13	80	93	205	249
Canada	—	—	0	24	23	24	—	—	11	7	34	55
Other British Possessions..	16	20	23	22	57	82	14	14	31	25	141	163
Total British Possessions..	119	156	103	143	200	561	54	47	296	284	771	1191
Total	**200**	**272**	**196**	**229**	**1280**	**1301**	**172**	**170**	**533**	**498**	**2381**	**2470**

83

* Other than Telegraph and Telephone Cables. † Australia. ‡ Straits Settlements and Dependencies.

Electrical Machinery Exports

Returns of the exports of electrical machinery do not exist for the years prior to 1903. Since then there has been a steady and large expansion from £437,000 in 1903 to £996,000 in 1907. The principal markets have been India (from £106,000 to £171,000), Australasia (from £73,000 to £139,000), Japan (from £39,000 to £129,000). The detailed table will be found in Table 36 (Sec. VI.). 84

Effect of Foreign Tariffs

The position as to electrical exports generally is summarised as follows in the evidence: "Our best export markets, at present, are India, Australasia and South America. South Africa has become more and more the cockpit of international competition. The severity of American and German competition, as I have said, is largely due to the fact that their industries start with the enormous benefit of protected home markets. Their tariffs are practically prohibitive, and being secure in their own home fields, they are of course able to produce for export at a cost with which it is increasingly difficult to compete."

General Conclusions

Notwithstanding these drawbacks, however, the volume of business done in electrical engineering has materially increased, some conditions have been improved, our external trade is a steadily growing one, and, properly fostered, would it is believed be equal to our home trade in a few years. But the trade has not increased in proportion to the increased demand, foreign importations now representing a larger share of the total consumption. It is maintained however

85 that the firms who have held their own have been those who have found the capital and also the market in which to dispose of their commodities in quantities sufficiently large to be remunerative. Smaller works and smaller factories cannot compete and are disappearing. "When British enterprise and British capital have been employed in establishing industries in protected countries the results have, in general, been successful; whereas the experiments of foreign manufacturers in erecting subsidiary factories in Great Britain have, on the contrary, demonstrated that the qualities which some critics attribute to them do not enable them to carry on business to better advantage than the native born, however brilliant may have been their achievement under the easier conditions abroad." In certain electrical apparatus, the quality of English work is exceedingly high and the superiority in some respects of English machines will at times lead engineers to give home manufacturers a slight preference. Thus, apart from any question of design, English dynamo electrical machinery is reputed to be more workmanlike and better finished than imported machinery, the production per man also is said to be higher than on the Continent, and about equal to that obtained in the best United States shops, and these results are obtained although the British shop hours are appreciably shorter. It is generally agreed that the electrical industry of this country could employ a much larger number of workpeople. The
86 labour is highly skilled, but it requires considerable time and organisation to assemble together sufficient numbers of reliable and skilled workpeople.

(3) MARINE ENGINEERING AND SHIPBUILDING

Shipbuilding

There has been up to 1907 a large and progressive increase in the amount of shipbuilding in the yards of the United Kingdom as recorded by Lloyds.* In 1908 there was a fall of 737.000 tons from the 1907 figure. In the three-year period 1895–97 the annual tonnage, including warships, launched was 1,129,000; by 1907 the figure had risen to 1,741,000, an increase of 612,000 tons, or 54 per cent. By districts the growth has been as follows:—

TABLE 10—UNITED KINGDOM. TONNAGE OF VESSELS LAUNCHED IN THE PRINCIPAL SHIPBUILDING DISTRICTS (in thousand tons)

87

88

	1895–7	1898–00	1901–3	1904–6	1907	Increase (+) or Decrease (−) 1895–7 to 1907	1908	Increase (+) or Decrease (−) 1907 to 1908
Aberdeen	5	9	8	9	9	+4	4	−5
Barrow, Maryport and Workington ..	23	31	29	29	8	−15	13	+5
Belfast	107	126	155	121	129	+22	154	+25
Glasgow	237	283	328	300	389	+152	237	−152
Greenock	107	168	149	201	214	+108	103	−111
Dundee	9	18	19	20	14	+5	25	+11
Hartlepools and Whitby	81	131	104	122	94	+13	38	−56
Hull	16	24	17	28	31	+15	15	−16
Leith	12	18	15	13	19	+7	9	−10
Liverpool	14	9	11	8	10	−3	12	+2
Middlesbro' and Stockton	106	144	120	130	139	+33	57	−82
London	8	12	13	10	4	−4	2	−2
Newcastle	201	279	284	331	331	+130	196	−135
Sunderland	172	249	229	287	292	+119	87	−205
TOTAL	**1129**	**1508**	**1531**	**1655**	**1741**	**+613**	**1004**	**−737**

The largest increases shown in 1907, in each case more than 100,000 tons, were in the yards of Glasgow, Greenock, Newcastle and Sunderland. The yards of the Barrow, Liverpool and London districts show a decline. There was a decline in 1908 of about 42 per cent., as compared with 1907.†

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* Lloyds' "Annual Summary of Shipbuilding at Home and Abroad."

† At a meeting of leading shipowners at Newcastle, on January 14th, 1909, Sir Walter Runciman said there were 1½ to 2 million tons of shipping lying idle, and the drop in dividends this year was estimated at from £25 to £30 millions. At the same meeting it was stated that British shipowners were short of "living freights" by £23½ millions.

Building on Foreign Account

At the present time nearly one-third of the shipbuilding in the United Kingdom is on foreign and Colonial account. The growth in recent years has been as follows (in thousand tons) :— 89

	For Colonies	For Foreign Countries
1892–94	8	134
1895–97	15	241
1898–1900	18	284
1901–03	35	254
1904–06	37	278
1907	72	477
1908	68	307

The destinations of these ships are widely distributed, the chief foreign countries being Austria-Hungary, France, Norway, Germany and Italy.

Comparative Progress of Foreign Industries

The comparative progress of foreign shipbuilding industries is shown in the following table of merchant vessels and warships launched in the principal foreign shipbuilding countries (in thousands of tons) :—

90

	1895–7	1905–7	Increase
France	79	82	3
Germany	130	321	191
United States	129	458	329
United Kingdom	1061	1791	730

Admiralty Contracts

The evidence shows the great stimulus given to the British engineering and shipbuilding
industry generally by the system of Admiralty contracts. In effect these constitute a rigid system
of protection since builders for the Admiralty are expressly precluded from buying any materials
except from British firms on the Admiralty list. As one experienced witness says : “ Our Admiralty
authorities really specify the firms from whom we have to buy materials for British warships ;
they give us a list of makers and we may only go to a maker who is upon that list. If other
manufacturers wish to qualify and apply to be put upon the list, the Admiralty make an
examination of their works and add their names if they consider them eligible, and they generally
do if the firms have any status at all. The battleship industry is really a protected industry as
far as the British Admiralty is concerned. Nevertheless we probably could not build a battleship
appreciably cheaper if we were permitted to get our materials in any part of the world, excepting
as regards such an item as shafting for which we cannot obtain real competition amongst the 91
British makers. On the whole cost of the ship however that is comparatively small. This system
applies to everything we buy for the Admiralty. We get all the material for building a British
battleship from British firms.”

Opinions differ as to the advantage derived by individual firms from particular Admiralty and other Government contracts but the general impression is that the engineering and shipbuilding industry as a whole must necessarily derive considerable advantage from this system of Admiralty protection by reason especially of the security it gives to manufacturers for the employment of a definite amount of skilled labour, plant and machinery.

Moreover engineering and shipbuilding derive other considerable advantages from Government subsidies and Government mail transport and other contracts given to various British shipping lines. During the past ten years the Government money which has passed into the hands of the British Steamship Companies in respect of these and similar services has amounted to nearly £2 millions per annum.

Effects of Administrative Protection

As to the effect of this administrative protection upon prices the witness already quoted asserts that if British builders of warships were permitted to obtain materials from abroad they could not build ships appreciably cheaper except as regards such an item as shafting “ for which we cannot obtain real competition from the British makers.” The protection given to one part of the industry, namely that relating to warships and mail ships, advantageously affects other ships, the building of which demands the same organising faculties and industrial skill. 92

Relative Cost of Shipbuilding

Of the cost of shipbuilding as a whole the evidence goes to show that, for the larger type of war vessels and for the best class of steamers and liners England can still build most cheaply ; but for the smaller and cheaper type of vessel for Colonial work and small tugs and fishing boats, the cheapest construction is in Germany and Holland. One witness stated that Germany could beat us in cheapness in the two extremes, that is in the finest class of Atlantic liner and in the small class.

93 With regard to the relative cost of building warships a witness stated :—"I had an opportunity a short time ago of seeing a comparison between the cost of warships built in this country, in France, Germany and in America for a foreign Government, which was based upon a very careful analysis and the ships built in this country worked out cheapest. With regard to those built in France and Germany, I was surprised to find the German ships worked out much higher than ours. The American were the dearest of all." This observation refers only to battleships and cruisers. In the United States they are much longer also in building than they are here.

Exports of Ships A large trade is done in the export of ships. There are no returns for any year before 1899. In that year the exports were of the value of £9,197,000 ; there have since been considerable fluctuations and in 1903 the value was £4,284,000 only. In 1907 the figure reached £10,018,000. Taking the nine years it is seen that we have built £12¾ millions worth of ships for Japan, £9¼ millions for Germany, £5 millions for Austria-Hungary, £4½ millions for Norway, £2¼ millions for Russia, £4½ millions for South American Countries, and £8¾ millions for British possessions of which the chief were Australia £2½ millions, India nearly £2 millions and Canada and New Zealand £1¼ millions each. (See Sec. VI., Table 42.)

94 ***Coal Exports and Shipbuilding*** The table given below shows that a large proportion of the increase in shipping and shipbuilding is due to the exportation of coal. This table is compiled from the British Merchant Shipping and the Trade Returns and shows that the increase in the exportation of coal has been from 22,107,000 tons in 1886 to 63,601,000 tons in 1907 and the increase has been continuous. In fact if the coal exports be deducted from the total cargo space available the percentage of other cargo tonnage to the total tonnage cleared in cargo and ballast has declined continuously since 1886, from 73 to 61 per cent.

TABLE 11.—UNITED KINGDOM. CLEARANCE OF BRITISH AND FOREIGN SHIPPING AT PORTS

95

	1886	1896	1906	1907
		thousand tons		
Cleared (cargo and in ballast)	31,805	42,985	60,509	67,031
,, (cargo)	29,108	37,703	54,299	57,845
Coal exports	22,107	32,948	55,600	63,601
Coal (in ships tons of 100 cubic feet)*	5,969	8,896	15,012	17,172
Balance of cargo tonnage after deducting coal space ..	23,139	28,807	39,287	40,673
Percentage of total tonnage "in cargo and in ballast" ..	73	67	65	61

* It is assumed that one ton of coal occupies about 24 cubic feet. It is assumed that allowing for packing the capacity is 27 cubic feet per ton.

Boiler Tube Industry Large and flourishing industries have arisen through the system of Admiralty contracts. The boiler tube industry is cited as one of these : "If British shipbuilders had not been prevented by the Admiralty from going to Germany for these tubes, the industry might not have been so flourishing to-day. Now we can get weldless tubes in any number, because of the action the Admiralty took in insisting upon getting them manufactured in this country."

96 **Shafting** There is evidence as to the importation of marine shafting at prices with which British machinery makers cannot compete and some instances are given of the comparative costs of British and German firms showing the lower cost of the German firm.

(4) MECHANICAL ENGINEERING

Mechanical Engineering In mechanical engineering the volume of business generally is said to have been fairly steady for some years. Some branches have become more remunerative, but net profits generally have fallen in relation to turnover. A firm of merchants state that there has been a large increase in the proportion of foreign to British-made goods in use in the United Kingdom. Twenty-five years ago they bought no goods from abroad ; now at least one-half of their purchases is made with foreign countries.

The official returns throw very little light upon this branch of Engineering. The only item in this branch which is given separately in both the import and export returns is Locomotives the other items are lost in the general term "Other Descriptions." As regards locomotives the imports are negligible, being in 1907 of the value of £5,600. The exports of locomotives have increased rapidly from £713,000 per annum in the five years 1875–9 to nearly £3½ millions in 1907. The increase to South America accounts for more than three-quarters of the increase to foreign countries; the exports to the Argentine in 1907 being nearly £1,400,000. The most important British market abroad is India, which, in 1907, took more than £1¼ millions of British locomotives. There are said to be fewer locomotive builders in this country now than there were 20 to 30 years ago. Some firms have grown larger, but many are almost extinct. The capacity of British works for turning out locomotives is from 1,000 to 1,500 engines a year according to the type. The tendency towards standardisation is welcomed. Standards have been drawn up for India; and the hope is expressed in the evidence that this is the beginning of a larger system of standardisation throughout other countries. "It would be a great help to the British business within the Empire; British firms could then supply parts at once, and would know exactly what to expect." **Locomotives** 97

Labour and Wages

On the whole, the amount and continuity of employment has decreased, and witnesses state that many of their employees have gone to Canada and many to Africa to work on the railways. On the other hand, wages have been gradually going up, though there have been few, if any, actual advances all round. The gradual rise of wages is attributed by some witnesses to the action of trades unions. 98

Home and Foreign Trade

In regard to the home demand it is pointed out that British railways build nearly the whole of their own engines. It is only on rather special occasions that they buy from the manufacturer. So long as that policy is pursued by the railway companies there is held to be little chance of expansion among independent locomotive builders.

British firms formerly supplied a large proportion of Continental requirements. We still trade with Spain to some extent, and a little with Portugal, but we do not supply the principal Continental countries. In regard to Germany, where the demand has greatly increased, the position of the manufacturer is said to be strengthened by the fact that the State, which owns the railways, encourages the building of locomotives by private companies. The formation of rings or kartells is also believed to give the German manufacturer a substantial advantage in competition with his English rival in the world's markets. United States locomotives are not held to be equal to the English. A United States locomotive "taken off the shelf" built to their standards, patterns, and everything they have in hand, would be 15 or 20 per cent. less in cost than ours built to British specification, but if United States makers had to build to British specifications they certainly could not compete with us. The United States engine is a much cheaper article as regards materials, design and workmanship. It is not built to last so many years, for United States practice does not favour the British system of repairing by which an engine may be kept running for 30 or 40 years. It remains to be seen which type will best bear the test of experience. In South America British makers supply practically the whole of the engines for British railways, such as the Rosario and the Great Southern. These railways use a great many engines, but it is necessarily a fluctuating business. 99

Preference

Witnesses think Imperial preference would be a great advantage. But railway companies in Canada have manufactured engines for themselves for many years past—both the Canadian Pacific and the Grand Trunk have very fine shops, and it is only when they are building them for capital account or in times of great pressure that they buy from the outside. Witnesses think they could compete with the United States under an adequate system of preference. Indeed the Canadian preference gave to a Glasgow firm orders for locomotives for the Canadian Pacific Railway Co. which would but for the preference have gone to the United States as previous orders had done. One firm state that the price of their locomotive in Canada is over £3,000 with the duty—an advantage of £300 in favour of the British as against the United States manufacturer. 100

Other Rolling Stock

Railway carriage works have recently been started in Russia. At Tver, about a day's journey from Moscow, was said to be about the largest carriage works in the world, covering 250 acres of ground. There has however been a good demand from South America, and the Argentine Republic particularly. Some big contracts in England have been given out to foreign countries. Net profits in relation to turnover have on the whole decidedly diminished. There is considerable foreign competition in tram cars.

Stationary Engines

There are no British official figures in regard to stationary engines. The evidence indicates considerable and successful German and other competition in the British market. The German

101 returns show an export of "steam engines (not locomotives)" to the United Kingdom valued at £309,000 in 1904, and falling to £61,000 in 1907. It was a progressive trade up to 1904. The United States returns show an export to the United Kingdom varying from £249,000 in 1900 to £49,000 in 1907.

As regards British exports there was from 1860 and until recently a large and increasing business in portable and other engines with Germany, but in recent years, in consequence of the imposition of high duties, we have been gradually driven out of the German market, and now the trade is spoken of as a comparatively small one. Instances are given showing that whereas an appreciable trade was done with Austria-Hungary in the seventies it is now practically extinct.

Gas Engines

There has been a considerable development of foreign competition in all branches of gas engines, many products being imported from the United States. There are no official figures.

Hydraulic Machinery

102 Much evidence was taken on the state of the hydraulic machinery branch. One witness states that the works have been fairly well occupied. If trade is a little quiet machinery can be made such as centrifugal pumps, etc., for stock which is always sure to sell. Another says the number of persons employed has fallen off 30 per cent. since the year 1900, and a third firm state that although they are very busy prices are so miserable that it is simply a matter of keeping the works going. In fact, says this firm, "we have sold machinery we had in stock absolutely below cost price in order to do trade but allowing for ups and downs, there is a drift downwards." A fourth witness says there is a general depression in trade, but it is not specially connected with foreign competition but with the state of the shipbuilding industry.

Foreign Competition in the Home Market

The United States hydraulic engineering firms who established themselves in London and imported their steam and other pumps largely into this country have "retired from the contest" owing to the keenness of competition, prices being in the words of one large firm "cut down generally in most of the lines so as to be unprofitable." In the case of the Chelsea Generating Station, the first large centrifugal pumping contract in this country, the work was given to an American firm, and the machinery was made in the United States.

Foreign Materials

Foreign materials according to the evidence are less used than formerly in the British industry, and one witness says: "I do not consider that a tax on imported iron and steel would affect the prices of our raw materials as what we use is practically all produced in the British Isles." A certain amount of imported tools and appliances is still being used in the pump trade and also leather goods, chiefly from Germany and Sweden.

Effect of Foreign Tariffs

103 One witness says his business with Germany proper has "practically gone" under the operation of the German tariff of 35 per cent. though he is doing a large business with the free port of Hamburg. A good business used to be done with France in certain classes of pumps but little is done now. "We had a fine business at one time with Italy but they have put on an import duty of 25 per cent. against us and it is very difficult." As regards the United States one large firm of pump manufacturers says:—"How can we compete against a 45 per cent. import duty."

Competition in Colonial and Neutral Markets

There is keen competition in British Colonial markets such as Canada, Australia and South Africa, and it has increased. One witness attributes this increase largely to the dumping of materials such as pipes, bars, shafting pulleys, and similar material and also of fully-manufactured articles such as pumps, air compressors, etc. British patterns have been freely copied by American manufacturers and imported into the Transvaal. In Egypt the demand has greatly increased. "Now that a native can go and spend his money without fear of the tax collector he is spending it much more freely and there is a good deal of machinery going in." There is some German and Swiss competition in pumping machinery. Foreign competition in Colonial markets has been much

104 aided by low railway rates, such as those from the United States into Canada, or to South America, and preferential shipping freights, and also by the fact that many buyers and users in our Colonies and foreign countries are unable to discriminate between a well-constructed, but probably 'plain-looking' article, as compared with a gim-crack, but showy, foreign production."

Preference

Under preference some manufacturers report increased trade with Canada. Others say that the Canadian preference is "nullified by the very low and preferential railway rates and shipping freights which the United States manufacturers obtain on goods to the former country." Benefit also arises in Australasia but "the amount that the Australians are able to expend on machinery of our description is limited, and similarly in New Zealand."

Copying of British designs

There is great complaint of the copying of English designs. "Our machinery and our catalogues," says one witness, "have been copied in an almost incredibly bare-faced way, principally by Americans." "The Belgians copy largely," says another firm, "but probably the Germans are the largest copiers we have. They copy English designs indiscriminately without any regard for trade marks or anything."

Motor Cars, etc.

Output and Imports

105 Practically all the motor car manufacturers in this country have been kept busy by the enormously increasing demand for motor cars, and witnesses do not think anywhere near the maximum of this demand has been reached. The British output is now estimated to be of the annual value of £5 millions while the imports of complete cars, chassis, &c., are of the value of £4 millions. In 1905 the output was about £3 millions. The capital in the British industry is about equal to the turnover in each year. This measures the capital employed not only in new manufacturing firms but represents also the extensions in existing engineering firms such as the Singer Manufacturing Co., Humber, Birmingham Small Arms, Daimler, Rover and Napier, all of whom are now actively engaged in the Motor industry. There is practically no importation of small parts in the sense of their being assembled in this country and put together by British labour to form new cars.

Instances of Expansion

Taking individual instances of British expansion, one witness states that his annual turnover has increased in the seven years in which he has been in the business to over £400,000. In agency work also a great deal of capital is employed. For instance one witness states that he knows an agency firm with £5,000 capital which has turned over £30,000 with a 10 per cent. profit on the turnover in one year, and he adds that a manufacturer with £30,000 worth of capital would not turn over £30,000 per annum. 106

It is anticipated that the business will ultimately get into comparatively few hands. Another tendency is the production of cheaper cars owing to the simplification of design. Cars can now be produced quite as cheaply in the United Kingdom as those which are imported. In fact the taxicabs which have recently been put on the London streets by British firms have been somewhat cheaper and better than those imported from France and other countries. As regards motor bus construction the Germans made it a speciality and have held on to it wonderfully well although they have lost a great deal of money by it. Some of the large omnibus companies in England have had their omnibuses manufactured in Germany and the Great Western Railway Company is also named as a purchaser of 'buses from Germany. In this branch generally much capital has been lost through company promotion or bad management.

Profits

Profits in 1907 showed a decline on previous years, but the prospects are now better. The
decline is mainly due to legislative restrictions in this country. The Motor Act was passed only in
1904. Prior to that time practically no motor cars were on the streets. Another 12 months
elapsed before regulations were issued dealing with motor cars and permitting them to run in the city
streets. For a long period before 1905 continental manufacturers were gaining experience in all 107
classes of cars and were able to take advantage of this country as soon as the regulations permitted
the general use of cars in public thoroughfares. This means of course that foreign manufacturers
had a decided start and took full advantage of it, not alone as regards their own markets, but also as
regards British markets. British manufacturers have had no actual experience of running cars
except since 1905, but they are now gradually overtaking foreign manufacturers and are producing
superior and more reliable cars at lower prices.

Dumping

There are foreign manufacturers who, when they are in want of money, send cars over here for practically what they can obtain. They send to this country because it is the only free market open to them. There are always means of disposing of these cars in this country. They are first-class cars. It is not suggested that this is a big item, but there is thought to be no question that this dumping does go on. Moreover English patents have also been copied and articles made in the United States and Germany for export to England at prices below those of the English makers.

Employment

108 It is estimated that 160,000 persons live by the manufacture of motor cars in the United Kingdom and 260,000 by their distribution and maintenance, and the evidence indicates the great advantage of the extension of the industry in the promotion of employment. Every motor car in use, whether imported or manufactured in the country, says one witness, increases the amount of skilled and unskilled employment. At least 90 per cent. of the cost of a motor car is for labour pure and simple. Repairs and tyres represent 25 per cent. per annum of its value and 15 per cent. of its value goes into the fuel and oil industry. Another witness puts it this way :—" The use of motor cars results in an amount of employment which in the course of two years is equal to the amount of employment involved in the manufacture of the car itself. There is in addition all the trade in accessories and in the trading department." Witnesses also maintain that motors increase the profitableness of the employment in which they are adopted, as a man driving a motor car can in his day's work do much more than a man who is driving a horse. A witness gives an instance of a large miller who has adopted motor vehicles with the result that he has since trebled his business simply because he is able to increase his range of action. Then owing to the fact that he can do a big business in one place he is able to compete in price because his milling costs are kept down.

109 One of the disadvantages under which the English manufacturer has laboured in the past has been that the working classes are slow to move from one form of industry to another, partly, in the opinion of some " because they are not sufficiently educated." Latterly the industry has been aided in securing the necessary mechanical labour for an expanding trade by the discharges from Woolwich Arsenal.

Witnesses also point to the increase in land values which follows upon the improvement in the means of transport over a larger area, bringing country estates and villages and small towns remote from railways nearer to large centres. For these reasons it is anticipated that the industry must increase enormously.

Foreign versus British Materials

As the home market has increased and the trade has become more firmly established under home control the different parts of motors have tended more and more to be made here. A witness gives his experience as follows :—" Seven years ago we started making motor engines in a small way and then motor cars. At that time we had to buy from abroad springs, axles, electrical apparatus, coils, accumulators, lubricators, tyres and various small accessories and steel for the crank shafts. We made the whole of the engine and the gear and we could also get the steel for the frame. We 110 bought these things from abroad because it was not worth the while of special manufacturers in this country to cater for such an exceedingly small market."

Official Figures of Imports and Exports

The first year in which motor cars were separately mentioned in the Board of Trade returns was 1904. The imports in that year were of the value of £2,424,000. The increase has been continuous and the value in 1907 was £4,553,000. The chief sources of supply are France (two-thirds of the total), Germany (less than one-sixth), and about one-sixth from all other countries. The exports have grown in the same period from £321,000 to £1,325,000, the chief markets being India (£243,000), Australia (£192,000), New Zealand (£123,000). The total to all British possessions is £769,000 or 58 per cent. of the exports to all countries. The chief foreign market is France (£232,000) (see Sec. VI., Tables 23 and 40).

French Exports

In contrast it may be noted that the exports of " automobiles " from France, as shown in the French official returns, increased from £25,000 in 1897 to £5,774,000 in 1907. The largest market is the United Kingdom to which France exported in 1907 to the value of £2,416,000, as compared with £8,000 in 1897 and £768,000 in 1902. The French imports in 1907 amounted to £347,000, of which £18,000 worth was British (see Sec. VI., Table 55).

United States Exports

The United States exports, as shown in the United States official returns, increased 111 from £198,000 in 1902 to £1,146,000 in 1907, of which the exports to the United Kingdom were £140,000 in 1902 and £319,000 in 1907. (See Sec. VI., Tables 49 and 50.)

The German Industry

The following table computed by the German Ministry of the Interior indicates the progress of the German motor industry. It is seen that the German output of motor vehicles and parts increased in value from £279,000 in 1901 to £2,509,000 in 1906.

TABLE 12.—GERMANY. PROGRESS OF MOTOR CAR INDUSTRY

	1901	1903	1906
(a) Number of factories	12	18	34
(b) Capital employed (in thousand £)	371	802	2,114
112 (c) Number of employees	1,589	3,289	10,347
(d) Value of motor cycles manufactured (in thousand £) ..	2	70	114
(e) Value of motor-vehicles and chassis manufactured (in thousand £)	232	521	2,116
(f) Value of separate parts, spare gear, ship and airship motors &c. ; repairs (in thousand £)	45	102	279
Total (d) (e) and (f) (in thousand £)	**279**	**693**	**2,509**

Cycles

The imports of cycles including motor cycles were not shown prior to 1897. Cycles and parts of cycles are shown separately since 1902 and motor cycles and parts of motor cycles since 1904. In the six years to which the separate cycle returns relate there has been a marked decline in the importation of cycles but this decline has been more than counterbalanced by the increased importation of cycle parts.

Change in the Import Trade

Complete cycles were formerly imported almost entirely from the United States, and the total importation was in 1902 of the value of £83,000; it was in 1907 £5,000 only. On the other hand the importation of cycle parts, chiefly from Germany, has increased in the six years from £61,000 to £166,000. The German share was in 1907 £68,000, the United States £35,000, and France £25,000. In addition there was in 1907 an importation of £79,000 worth of motor cycles and parts, of which £40,000 worth came from Belgium and £31,000 from Germany. (See Sec. VI., Tables 24 and 25.) 113

United States Dumping

The evidence speaks of the injury caused to British trade by the dumping of United States cycles. These machines were, it is said, sold in the United Kingdom at any price they would fetch for some years. Fairly good prices being obtained by these United States manufacturers in their home market they were able to send their over-production to this country "at even less than cost price." One firm state that goods which they could not deliver in New York under £25 each were dumped down at Liverpool from the United States and sold at ridiculously low prices. This practice caused great loss to British manufacturers and workpeople who were discharged, but it was too ruinous to last and the importation of complete cycles is now a negligible affair.

Importation of Parts

Their place has however been more than occupied by importations of cycle parts which are made up in this country, and it is alleged sold as British-made bicycles. 114
"Cycle components," one firm state, "are sold here by Germans at cost price in order that their output may be larger." "Complete cycle frames," says another, "are imported from the Continent, then made up into cycles and a United Kingdom name put on. There is also said to be a large importation of motor cycle parts from Belgium, France and Germany to be made up into complete motor bicycles here." Nearly all the smaller articles we sell, says one firm, such as cyclometers, pedals, etc., are of foreign manufacture instead of English "as they would be if the foreign goods were not admitted free." German makers of ball bearings are said to sell here "at 15 per cent. below their cost price."

Exports

The value of the exports of cycles and parts (not including motor cycles) averaged £1,278,000 in the five years ending 1896 and was £1,288,000 in 1907. There was a considerable depression in the interval and it was entirely caused by the decline in the foreign demand. Throughout the fifteen years the Colonial demand has steadily increased; it was £297,000 per annum during 1892–96, and £611,000 in 1907. The heaviest declines have been in the case of the United States (from an average of £175,000 per annum to nil), France (£264,000 to £111,000), Belgium (£125,000
to £43,000), Germany (£83,000 to £14,000), and Russia (£74,000 to £23,000). On the other hand, 115
in the British Empire markets the increases have been:—India £26,000 to £128,000, New Zealand £27,000 to £111,000, Cape Colony and Natal £42,000 to £99,000. The demand from Canada, on the other hand, has decreased from £42,000 to nil. (See Sec. VI., Table 41.) The total exports of motor cycles in 1907 were of the value of £28,000 and of parts £25,000.

Effect of Foreign Tariffs

Firms point to foreign tariffs as a principal cause of these heavy decreases in the export trade. "As the tariffs of Continental Powers have been raised our exports to those countries have declined." Before the present French duties were imposed one British firm had one of the largest distributing cycle depôts in France; now no business is done, and the same thing occurred in the United States and Germany. "We have no export trade and have no hope of getting any until we treat other countries as they treat us."

Preference

Preference has been beneficial in South Africa and New Zealand; and in Canada, although United States manufacturers have great advantages due to proximity, similarity of conditions, etc., "there is a greater disposition to buy from us since the preference." Indian trade has
undergone considerable expansion, but United States and German competition is keenly felt there 116
and in the Colonies British firms hold their trade by the better grade of their cycles.

Engineering Accessories

The state of the trade is said to be unsatisfactory. The periods of bad trade are longer and the periods of good trade shorter at each cycle. This is attributed to foreign competition and present conditions. The firm giving evidence state that before 1885 foreign competition at home was not worth troubling about but during the last ten years it has so increased that it has become very important. Ten per cent. of the home trade is said to be done now by manufacturers in Germany, United States and France. This firm also meet with competition from United States in Australia and South Africa. Almost every article that we manufacture is being met with something from the United States. They undersell us in many articles. The firm state they have made careful inquiries as to the reasons why United States makers can so frequently undersell them. Their conclusion is that it has "generally been a matter of method." The United States manufacturers make a large quantity of one article and can thus produce it at a lower rate than those who cannot make so many.

117 **Machine tools**

Many manufacturers of machine tools responded to the forms of inquiry sent out by the Commission. They complain generally of foreign competition. Smiths' tools, engineers' tools—lathes, drilling machines—enter directly into competition with those of British make. The machine tools imported are generally of United States or German manufacture. In the opinion of witnesses the idea that they are superior to British tools is a mistaken one. In addition to competition from direct importation firms supplying evidence point out that they suffer considerably from the depression of other trades which are subject to unfair competition. For instance, a firm of manufacturers of rolling mills and engines, forgings, presses, etc., state that in their experience improvement in steel works has been very much held back owing to the continual fear of United States or German steel being dumped on the home market. The result is an indisposition to keep British plant up-to-date. A firm of merchants states that in their opinion the proportion of foreign-made goods to British-made goods in the machine tool trade has if anything diminished of late, chiefly because of the adoption by British machine tool makers of the more modern methods of manufacturing in vogue amongst their foreign competitors.

118 United States manufacturers have made great progress in the manufacture of machine tools. They have developed special machines for certain classes of work and now have a considerable hold on the British market. "My own experience," says a witness, "of the American machine tools has been extremely good. I cannot get such good tools in England in design and quality of steel in any way, but chiefly in the design and the convenience of the machines. There is no reason why the English should not make them every bit as good only I think the Americans are a little quicker." Another witness says that while he finds certain United States special tools better for his own purpose than the British they are not as a rule so well made.

Agricultural Machinery generally

Contrast with the United States

In agricultural machinery evidence is given as to the great difference in costs and general competing power of British and foreign manufacturers, arising from the difference in output in the United States and in England. "In Chicago we have customers who individually order castings for 20,000 to 100,000 harvesters per season; it will thus be seen that in Chicago we can put down special machinery for making these castings, which not only enormously increases the output per hundred square feet of shop floor, but also requires less supervision, and ensures much

119 less waste in the manufacture. We cannot do this in England; we cannot afford to spend £3 in machinery to save £1 in cost, and then at end of season find our customers change their designs, and our machinery rendered useless for their future requirements. Broadly speaking, owing to the jobbing characters of the orders we get in this country we require works in area and cost equivalent to those in the United States having nearly double the output, and we see no prospect of improvement in this respect until our largest customers are in a position to secure more of the home trade than they do at present. As an illustration, we do not think that the combined output of British implement makers of 5,000 self-binding harvesters per year represents more than about 5 per cent. of the sale of these machines to British farmers, the other 95 per cent. are dumped on the British market by the United States manufacturers, and this not necessarily at a loss to those makers, as their enormous home demand added to that of the British market reduces their labour costs and establishment charges to the minimum. We think that a 15 per cent. to 20 per cent. tariff on agricultural implements would enable our British makers to command the home trade, the reduced costs due to enhanced demand would enable the British implement maker to sell with profit at a price little if any in excess of that secured at present. We with the increased repetition orders could sell malleable castings to the implement maker at a much lower price, and still make a profit equal to that we now make at the higher selling rates."

Dumped American Machines

120 No firm in the United Kingdom confines itself to the manufacture of harvesting machinery (that is mowing, reaping and self-binding machines) for the trade is a seasonal one. Many firms combine this manufacture with food preparing machinery such as chaff cutters, turnip pulpers, corn grinding machines, corn crushers, oil cake mills, horse gears, etc. The products of this latter trade find their market in the winter and so far as the home trade is concerned there is no competition from abroad.

Harvest Machinery

In the harvest machinery trade the manufacture is practically confined to the United States, Canada and the United Kingdom. In France where the demand is very large no material progress has been made by French manufacturers and great advance has been made by United States makers. They also now supply a large part of the harvesting machinery used in other Continental countries. In Germany there are a few makers but their output is not large. In Austria the State factory manufactures a few machines and there are one or two other firms, but the native competition is weak. In Russia 90 per cent. of the demand, which is enormous, is supplied by the

United States, Canada and the United Kingdom. In Sweden there are a few makers of mowing **121** machines but requirements are chiefly met by the United States and Canada; a small supply only goes from the United Kingdom. The other Continental countries obtain their supplies of harvesting machinery solely from the United States, Canada and the United Kingdom.

Growth of United States Competition

The reasons for the growth of United States competition are stated in the evidence to be as follows. From 1873 to 1883 the trade so far as English manufacturers are concerned was at its zenith. The Paris Exhibition of 1878 brought exhibits from all the large United States makers who thenceforth recognised the importance of the European market, and pushed their European business with much energy. British manufacturers were busy with their works fully occupied and failed to realise the seriousness of the new competition. They assumed the United States machines, especially the mowers, being of lighter construction would not be suited to the requirements of European agriculturists and especially for the heavy meadow crops of Great Britain and of some districts in France and Germany. The United States makers saw that alterations must be made and made them. It was also assumed that United States makers would be fully occupied in supplying the needs of their own market and British manufacturers underestimated the rapidity with which the industry could be extended. Hence the bulk of the harvest machinery trade of the world has gone to the United States and Canada. At Bordeaux **122** all the mowers formerly came from England, now the vast proportion of the trade is done by the United States, although one English firm state that their trade is increasing. Other Continental markets, such as Belgium, Holland, Scandinavia, Spain, Italy, Switzerland, Austria-Hungary, Roumania and Russia have been restricted for the British manufacturer. The food preparing machinery trade with Germany which was a valuable adjunct to the harvesting machinery branch has also been lost.

Loss of British Trade

Colonial and other Markets

Australia and New Zealand take their supplies chiefly from the United States and Canada with a small percentage from the United Kingdom. Australia is now making threshing machinery under cover of the tariff. South Africa is absorbing an increased quantity of harvesting machinery, and a large proportion is supplied by the United States and Canada. Argentina and Chili are large purchasers and here also the bulk of the trade is obtained by the United States and Canada. Foreign competition in neutral markets becomes increasingly severe.

Comparative Advantages.

So far as the purchase of materials is concerned United States and Canadian makers are thought to have no advantage over Great Britain. They pay higher wages but the production per man in the United States and Canada is greater than in England. Witnesses state however **123** that the cost of labour as distinguished from wages paid in the United Kingdom has diminished. On the whole transport rates are an advantage to the United States and Canada. The real difference between England and other manufacturing countries arises in connection with national and trade policy. In the case of the United States means have been taken by amalgamation and other methods to secure economy of production and better organisation and hence a large production at lower cost. The "International Harvester Trust" of the United States is said to have a capital of £25 millions. The best United States and Canadian mowing machines are sold at lower prices than the best British machines. No expense is spared to obtain the trade. Their travellers and experts attend markets all over the country and it is said that no British manufacturer under present conditions can afford to fight them on their own methods.

Canadian Trade

Witnesses state that their class of manufactures does not meet the needs of the Canadian market. On the other hand the Canadians import their reaping, mowing and other machinery into the United Kingdom along with the makes of United States manufacturers. No English manufacturer has thought it worth his while to open up a Canadian trade. The free market in the United Kingdom is of course of great advantage both to Canada and the United States, "but in the **124** actual agricultural implements we are not suffering from dumping."

Other Machines

A manufacturer of grain weighing machines says that foreign competition in his trade is not serious. Although the Germans are better organised and have cheaper labour and can manufacture more cheaply than we can here, the expense of commissions or discounts they have to pay to obtain business here makes serious competition impossible. Drying machines for brewers' grain were first brought out in Germany, but similar machines are now being made in this country and are supplanting the foreign made.

Cream Separators

The almost general adoption of machines for the separating of cream from milk by centrifugal force has brought into existence a distinct industry. Its profits depend almost entirely upon a large turnover and British makers are said to recognise "the insufficiency of the home market and their dependence upon the development of a large export business." The importation in large numbers of low-priced foreign machines is spoken of as a recent unfavourable factor, and especially

125 because the inferior quality of these machines causes the farmer "endless trouble and vexation" and makes him lose faith in the utility of cream separators in particular and modern methods in general. There are approximately 200 Continental competing makes and only three British. In all export markets competition tends to increase very rapidly. "In countries where the home market is protected and a demand for dairy machinery exists, a manufacturer has little hesitation in embarking on the manufacture of cream separators. Outside competition being restrained, it is possible to develop a good home demand, and when once engaged in the manufacture the natural outcome is an effort to develop an export business." Practically every British Colony offers a good market for cream separators, more especially Australia and Canada. British trade with these markets is certainly on the increase, but not in proportion to that of foreign competitors who at present get very much the largest share of this business—Preference would here be of value. Germany, Austria, Belgium and France also offer good markets and British makers are struggling to compete therein, though with small success so far. The Scandinavian markets are practically closed to British goods, which is mainly due to their being the home of the principal competitors.

Official Returns of Imports and Exports

126 The official British returns of imports of agricultural machinery only go back to 1901. In that year the total imports were of the value of £369,000, and grew to £770,000 in 1907. The chief source of supply is the United States, which sends three-quarters of the total. Canada sent in 1907 £68,000 worth. The export figures go back to 1882 and show little increase over the whole period. The value was in 1907 £2,155,000, as compared with £1,803,000 annually during 1882–84. About 90 per cent. of the exports are to foreign countries—Russia, Germany, France, Italy and South America. Australasia is the most important Colonial market. (See Sec. VI., Tables 19 and 29.)

There are also official figures relating to the exports of agricultural implements. The increase has been from £295,000 per annum in the five years ending 1879 to £487,000 in 1907. The chief foreign markets are South American and the chief British Empire markets are South Africa, India and Australasia. (See Sec. VI., Table 38.)

Mining Machinery

127 The trade of mining machinery makers has increased through the development of new markets, especially in South Africa and Western Australia. Employment has steadily increased. One witness states: "Thirty years ago we employed 100 hands, and now we never employ less than 1,500. We have had no considerable strike for 40 years, with one exception, and then only with one department of works. The other firms in our district can also say as much and the rate of wages has increased." Foreign competition is very keen, and comes chiefly from the United States and Germany. In South Africa, according to one witness, the preference is too small to affect the trade, "foreigners pay the difference and compete." According to another manufacturer the preference has been "a great help to British enterprise." It seems to be the general opinion that British trade with the Transvaal tends to increase, and among the reasons named is the realisation by British manufacturers of the necessity of having their own expert staff on the spot instead of trusting to agents. German competition in "shoes and dies" for gold stamp mills in South Africa is said to have "reduced the price to a point at which the trade can hardly be carried on at a profit and a large share of it has consequently gone from this country to Germany." This is given as an instance of the benefit that would accrue to British manufacturers from a more substantial Colonial preference.

The official figures for the exports of mining machinery date back to 1893 and the increase since that year has been from £398,000 per annum during 1893–94 to £875,000 in 1907. The chief markets are within the British Empire, viz., in 1907 South Africa £250,000, Australasia £105,000 and India £69,000. The most important foreign market is Portuguese East Africa £184,000. (See Sec. VI., Table 34.)

Textile Machinery

128 The largest market for British textile machinery and millwork is India; according to the Board of Trade returns the exports were £1,782,000 in 1907, as compared with £857,000 in 1893–94. The only other British Empire market is Canada (£64,000 in 1907). The largest foreign market is Germany (£749,000 per annum in 1893–94 and £960,000 per annum in 1905–07). Other important foreign markets in 1907 were: France £865,000, Italy £848,000, Holland and Belgium £768,000, United States £584,000. There is an increasing importation of textile machinery chiefly from the United States and Germany. It was of the value of £112,000 in 1901 and £229,000 in 1907. (See Sec. VI., Tables 19 and 35.)

The evidence indicates the fluctuating character of the textile machinery trade, which is spoken of as now coming more in "rushes," instead of the continuous demand formerly experienced. The importation of textile fabrics has decreased the home demand for textile machinery. The German, Russian and French tariffs have proved most harmful to some classes of textile machinery makers, though in other classes the German trade has increased and a large trade is still done with other Continental markets. The German duties are said to have "killed to a great extent" the German trade of one manufacturer. "It would," this firm state, "be a great advantage to possess the power of bargaining with other countries for the reduction of their tariffs." Another firm state that both in France and Germany "the duties on English-made machinery have been the cause of the French and German makers starting to manufacture machinery for flax, hemp and jute fibres." In some classes of textile machinery the 45 per cent. tariff of the United States is found to be "an absolute obstacle." Other classes still enter the United States. United States and German competition is felt in the British market, and in regard to the importation of hydro extractors from the United States it is said that they are sold here at prices below the British cost of production and considerably below the United States home sale price; "very probably," adds one witness, "it is surplus stock dumped on the British market at cost and in some cases perhaps less than cost." Colonial markets for textile machinery are not spoken of as important in the present initial stage of Colonial textile industries, though one firm anticipate their future importance and oppose Preference "as it would only act as a somnolent." The same firm advocate the abolition of mining royalties in order to cheapen raw materials. 129

Milling Machinery

130 Milling engineering in its modern form dates from about 20 years ago, and is the result of a revolution in the manufacture of flour. The machinery is made by only a few firms. Of the flour used in this country 75 per cent. is said to be ground and made by foreign made machines. This is in spite of the fact that British milling machinery is held both by British and foreign opinion to be about the best in the world, but under present conditions the market is too restricted to enable the British maker to compete with the foreign prices. The 1s. duty on corn, though in operation for so short a time, caused an extension of the milling industry. No more mills were put up but existing mills were busier and there was a slight increase in renovations.

The milling machinery trade has constantly increased during 20 years and net profits are also said to be larger. Complaints are made, however, that milling machinery makers do not work to their full capacity and they wish to do more. One firm of manufacturers, for instance, say:—"On the whole our business has increased in bulk during the last few years, but we are not getting as much for it as we did before. Everything was bad down to September, 1904, when it began to improve for the first time. Prices have improved, and the present improvement is likely to continue."

Paper-making Machinery

131 Six firms of importance are now engaged in the making of paper-making machinery, and their profits are said to be "steadily decreasing" in relation to turnover. The increased importations of paper have seriously affected the industry. Despite the enormously increased use of paper, home paper manufacturers are not greatly extending their mills and there is a practical cessation in the erection of new paper mills. "Within the last 20 years," says one firm of machinery makers, "not more at the outside than half a dozen new mills have been erected in these islands, whereas if the manufacture of even one-half of the £6,000,000 worth of paper imported could be captured for home manufacture at least 60 large two-machine mills would be required to meet the increase of trade thus developed. These 60 mills would represent a fresh capital of £3,000,000 and they would employ something like 10,000 to 15,000 hands. Although only some half-dozen new mills have been erected in the last 20 years, it is calculated that at least 50 mills have been closed during the same period."

Effect of Importations of Paper

United States Competition

The United States is spoken of as the most serious competitor in British and Colonial markets. There are no separate official British figures. Three large paper manufacturers in the neighbourhood of London are said to have imported machinery to the value of £150,000 from the United States during the last five years. The United States has also "practically captured" the Canadian paper-making machinery market despite the preference. "Lying as they do within a few hours' railway run of Canada's centres the engineers (of the United States) are able to be constantly in touch with the Canadian buyers of machinery and if a large overhaul or addition to plant is required, 132 not to mention a new mill, they have this advantage, which is a great one." Another British firm discusses the notion that American machines for the production of "news" paper are more suited to run at high speeds, such as 500 or 550 ft. per minute, and declare it to be amply proved that the best British paper-making machines are equal to the strain of the highest speeds. The United States tariff is absolutely prohibitive. "It is very difficult even to sell a highly approved patent appliance which has gained an excellent reputation in Britain because if the appliances should cost £1,000 the Government ask for £450 before it is allowed to enter the States."

German Competition

German machinery for paper-makers has chiefly taken the form of web-glazing calenders and machines for coating paper with starch, etc., to make highly finished art paper, and their competition has been felt in the British market, but it is said to have been proved that such machinery can be equally well made in this country, "with the additional stability which is a national speciality." Germany now makes her own paper machinery, and also supplies other European countries, in some cases the German engineers giving "large commissions" and "very extended terms of payment."

Other Markets

133 Norway and Sweden have been good markets, but Swedish engineering works have sprung up under a 10 per cent. duty and are "now getting the bulk of the business," while Norway has also now imposed a 10 per cent. duty. As European markets close against them British manufacturers look more and more to India, China, Japan and the Argentine for new business, and there also United States and German makers are in the field.

Profits

The position as to profits is summed up as follows by one firm :—"A general statement made in most businesses to-day, including engineering and paper-making, is that the profits are much reduced in relation to turnover, so that a greater volume of work requires to be done before a mere living percentage can be paid upon capital after proper establishment charges, depreciation and reserve have been provided for."

Sugar-Making Machinery

Effects of Sugar "Dumping" prior to the Brussels Convention

Sugar machinery manufacturers give much valuable evidence as to the effects of the Brussels Convention. The former Continental export bounties on beet sugar from Germany, France, Austria and other Continental countries not only brought much injury to the British West Indies but also greatly depressed the sugar machinery industry of this country. A witness explains
134 the position as follows :—"Previous to the Brussels Sugar Convention Germany was producing a large excess of sugar beyond her requirements, and the bulk of this sugar was exported to Britain and sometimes so flooded the sugar market that prices dropped to about £6 per ton, being below the cost of production, which in Germany was £8 per ton. This loss was recouped by the German beetroot sugar manufacturers owing to the very high price they obtained for their sugar in their own country and the bounties or drawbacks given to them by their Government on all sugar they exported. It was this unfair and ruinous price of beetroot sugar which depressed the cane sugar industry all over the world, and thereby the sugar machinery manufacturers of this country, and ultimately brought the British West Indies to the verge of bankruptcy.

After the Convention

"The Brussels Sugar Convention abolished Continental beetroot sugar trusts and Government bounties and drawbacks on sugar, resulting in a great extension of the cane sugar industry in various parts of the world, which naturally necessitated additional sugar machinery. Furthermore, the Brussels Sugar Convention gave more security for capital invested in the cane sugar industry, so that a large number of completely new and very extensive central cane sugar factories were erected in various parts of the world where cane sugar could be grown to advantage, which
135 gave a further impetus to the cane sugar machinery in this country, and the cane sugar crop of the world is now as great as—if not greater than—the beet sugar crop of the world." This greater security was followed by important improvements in sugar machinery and better methods of manufacture, which again very much reduced the cost of production, while leaving manufacturers "a fair profit" in place of the former loss. The uncertainty which has subsequently prevailed as to the complete maintenance of the Convention is said by some firms to have somewhat checked expansion, and caused unemployment. Other firms say there has been "no retrogression." Examples are given of the expansion following upon the Convention and include the Antigua factory, "Belleisle" factory (Jamaica), "Tamunua" (Fiji), Toyo (Formosa), "Treinta," "Chinameca," and "Tilapa" (Mexico), additions to Cuban plants, and re-arrangements and additions in Argentina plants.

Competition of Continental Beet-Sugar Machinery Makers

The expansion of the beet sugar industry of the Continent under the bounty system also had an indirect injurious effect upon the cane sugar machinery industry of this country. One firm state :—"The most notable change in the sugar machinery industry in the past few years is a fall in prices as the result of competition. This competition is now largely from the Continent
136 of Europe. The development by their respective Governments in past years of the production of beet sugar has brought a large number of engineering firms into existence or increased prominence, and they have prospered financially. Their ambition has been whetted and they have now entered the field of cane sugar machinery which in former years was mostly confined to this country. . . The forced growth of the machinery industry caused by the European bounties has still a powerful effect on the markets." On the other hand, some firms speak of progress both in the increase of business done and in improved prices in consequence of the Convention.

The Double-Market of Protected Manufacturers

Another firm explain the operation of the Continental double-market system as follows :—"French, German and other competing manufacturers have a protective duty against our importations of sugar machinery, thereby the foreigner has the whole of his home market without foreign competition and in addition the open market of the world on the same conditions as the British sugar engineers—that is, the Continental sugar engineers can supply Britain and the British Colonies with sugar machinery but erect a tariff barrier so as to prevent Britain exporting sugar machinery to them or to their Colonies."

137 Some firms see advantage in this increased competition between British and foreign makers of sugar machinery and attribute to it a large part of the recent improvements in machinery and reduced cost of production. "The logical result of this competition," one firm believe, "has always been to increase the demand for more efficient machinery while diminishing the profits on a given turnover." This firm add :—"We think we are right in saying that in regard to all the markets for sugar machinery which we have mentioned (British West Indies, Demerara, Mauritius, East Indies, Australia and Natal; and Cuba, Mexico, Central and South American States, Formosa and China) British-made goods are still able to hold their own both as to price and quality. . . We do not think that price accounts for work going past this country." Thus there is the special tariff preference in Cuba for United States machinery (though this firm still secures Cuban orders at good prices) and moreover there are specialities in the way of pumps and evaporating apparatus which come from French and German makers.

Effect of United States Preference

138 The general opinion would seem to be that the export trade is made increasingly difficult, and in many cases has been materially injured by recent American and Continental tariff and national policies. Formerly British makers supplied almost the whole of the sugar machinery for Porto Rico and the Sandwich Islands. By the aid of their preferential policy and a 45 per cent. duty, "the Americans captured the whole sugar machinery industry of these two cane-producing islands." British sugar engineers lost agencies established at much expense and British shippers and merchants and iron and steel manufacturers suffered heavily. Similarly British sugar engineers have lost their practical monopoly of the machinery trade of the Philippines, which went to United States engineers, and the British trade with Cuba is being similarly jeopardised.

French and Japanese Competition

The preponderance of French capital in the sugar industry of Peru, Brazil and Mauritius is said to give French engineers the bulk of the machinery orders and the former preponderance of France in Egypt is named as the cause of the fact that Egyptian machinery is "practically all French." In Natal and Formosa British machinery still predominates, but Japan has now started a sugar machinery industry of her own and is expected to supply Formosa in the near future. The bulk of the cane sugar of India is said to be produced by the natives "in a very crude fashion" though some factories have been erected. Mexican growers are said to have learned by experience "the superior character of British machinery" and trade with the Argentine tends to increase.

Profits

139 Though there are some differences as to causes, it seems to be pretty generally agreed that profits have declined in relation to turnover. "To make a living wage by making sugar machinery," one firm state, "one has to turn out more than double the quantity of work as compared with, say, 25 years ago, and even at that the margin is small. This means that by a large turnover one has a chance of making economies in production."

Use of Foreign Materials

British iron and steel materials are largely used by British cane sugar engineers, but German steel forgings and steel shafts have of recent years been successfully sold here at prices below the British cost of production. One firm speaks of the German materials they use as amounting to "perhaps 10 or 15 per cent. of the finished price." As a rule, however, British sugar engineers have, it is said, "refused to use this German steel, as the conditions under which it is imported into this country are similar to the conditions on which beetroot sugar was imported before the Brussels Convention, the said steel being sold at a much higher rate in Germany than that offered to the English buyer." "We would," another firm explain, "rather make a sacrifice if necessary and use home materials, for we believe that course is better in the end. In the event of any industry dropping out of existence in this country, we would doubtless have to pay more for the foreign material eventually."

British Beet-Sugar Production

140 Great stress is laid by one witness upon the desirability of encouraging a British beet sugar industry. The beetroot growing and beetroot sugar manufacturing industries of Germany, France and Austria have given widespread employment on the land and created valuable home markets for sugar engineers, and seeing the success of experiments in beet cultivation in the South of Ireland and England, it is urged that there is an opening for a large and profitable British industry employing large numbers on the land and in manufacturing.

Wood-Working Machinery

The manufacture of wood-working machinery is an extremely complicated business. One witness states that he makes every sort of machine connected with wood work, saw mills and saws, and also small tools, and that he has patterns for over 1,000 different machines. The total value of all the wood-working machinery made at present in this country is estimated at about half a million a year. In the London district the industry has much declined, and "is probably no more than £5,000 a year in value." The industry has migrated to other districts. Profits on the heavy articles manufactured have declined. Employment however is fairly steady as the firms do not care to get rid of their men, the work being a speciality. The trade is said to suffer considerably

141 from dumping. United States manufacturers make wood-working machines in enormous quantities, all the parts being made identical so that by turning out hundreds and thousands of them they can undersell their competitors. But, as a witness states, this sort of thing is now being done here, the difference being that United States manufacturers have the conditions in which they can do it on a large scale while we have not. Witnesses say that the United States machines do not last as long as the English, but they praise them highly and admit their handiness. Germany has also made progress in the industry. The evidence is in favour of some duties.

Electro and Stereotyping Machines

Manufacturers of electrotyping and stereotyping machinery state that in their opinion they suffer considerably from the idea that United States machinery is the only good plant to be obtained. They give typical instances in which British-made machines have actually been sold as "American," the orders being given to a United States firm and partly executed here, and the products sold as "American made." It is, however, said that the United States makers sell their machines here at a lower price than in the States. Instances are given of a machine which cannot be procured under

Linotype Machines

£154 10s. in the States, being sold here from £100 to £110. Linotype machinery firms say that the
142 "sliding scale at which various foreign competitors sell their goods" prevents them from arriving at any definite opinion as to whether such goods are sold below cost or not. Linotype machines have within their experience been placed with British firms much lower than cost for the sake of getting the first machines into this country, and thus laying the foundation for a future trade.

Typewriters

Imported typewriters come chiefly from the United States. According to the United States returns the exports of typewriters to the United Kingdom were of the value of £341,000 in 1906–07, out of a total to all countries of £1,307,000. (See Sec. VI., Tables 49 and 50.)

Bookbinding Machines

In bookbinding machinery it is said the Germans "skim the cream" with machines used by every printer, bookbinder, card box maker, and by numbers of those engaged in textile trades, but not a single machine is now made in this country.

Boot and Shoe Machines

Certain boot and shoe machines are leased at a nominal figure or a royalty. The lease obliges the contracting party to use only such machines as are controlled by the United States
143 firm, and is binding for 20 years. The lease once signed absolutely prevents an English-made machine entering the factory. Nearly all advanced boot and shoe machinery used in Great Britain at the present time is said to be of United States manufacture.

Sewing Machines

The total value of sewing machines exported was £418,000 per annum in the three years ending 1884, and £1,831,000 in 1907, with considerable fluctuations in recent years. The chief market is Russia, which takes 40 per cent. of the total exports. France takes £208,000 worth, Germany £161,000 and Italy £102,000. Of British Empire markets India is the most important, taking £62,000 in 1907. Imported sewing machines (£486,000 in 1907) come chiefly from the United States (£362,000). (See Sec. VI., Tables 18 and 33.)

Other Machinery

Washing and ironing machinery is said to be imported from the United States at "a price so low that it is difficult to suppose that any profit remains." The proportion of foreign-made brewing and bottling machinery is said to be much on the increase. All kinds of domestic labour-saving machinery are imported "representing a large market which would keep thousands of workmen employed if the machinery were made at home." In such machines as the linoleum machinery, linoleum printing machines, there is competition from the United States, such machines being
144 "often sold at a lower price in England than in America." Cement machinery is largely imported. A firm estimates that the business done in England in the four years before he gave evidence amounted to something like £200,000 in a particular class of machine, of which the English firms only got £15,000, though the machinery is practically in every respect identical. Weighing machines are said to have been imported from the United States at "dumping prices."

145 (C) COMPETING FOREIGN INDUSTRIES

Imports of Principal Countries

In Section VI. will be found a series of tables relating to the engineering imports and exports of Germany, United States, France, Switzerland, Austria-Hungary and Belgium, compiled in each case from the official returns of those countries for the last fifteen to eighteen years. The import and export trade with the United Kingdom is separately stated in each case. From them has been compiled the following summary table showing the imports of machinery into the various countries and though the classifications differ the totals may be regarded as approximately comparable.

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Table 13—Imports of Machinery into Principal Foreign Countries, 1891–1906 (in thousand £)

	From All Countries				From United Kingdom			
	1891	1896	1901	1906	1891	1896	1901	1906
Germany*	1,621	1,915	3,214	4,689	1,000	1,220	1,096	1,292
United States ..	567	587	693	761	456	504	499	478
France	1,869†	2,487	4,824	6,486	768†	1,103	1,314	1,764
Switzerland	777	978	872	1,440	89	111	67	71
Belgium	621	866	1,723	2,522	200	254	397	481
Austria-Hungary ..	1,470	1,779	1,764	3,257	499	491	441	637
Total	**6,925**	**8,612**	**13,090**	**19,155**	**3,012**	**3,683**	**3,814**	**4,723**
United Kingdom ..	—	**2,371‡**	**3,963**	**5,127**	—	—	—	—

* Including motor vehicles. † 1893. ‡ 1897.

147 The total machinery imports into these six foreign countries have it is seen increased from £7 millions to £19 millions while those from the United Kingdom increased from £3 millions to £4¾ millions; whereas 43 per cent. of the total imports of these countries came from the United Kingdom in 1891 the United Kingdom percentage fell to 25 per cent. in 1906. In other words while the import trade of these countries has been a rapidly increasing one, the share obtained by the United Kingdom has been a rapidly declining one. Out of the £12¼ millions of increased purchases only £1¾ millions were from the United Kingdom.

Exports of Principal Countries

In the same period the total exports of machinery from these countries increased from £10¾ millions to £44 millions, of which the exports to the United Kingdom rose from £1 to £4¼ millions. In 1891 the United Kingdom share of the exports of these countries was 8½ per cent.; in 1906 it was 9½ per cent. The detailed table is as follows :—

148

Table 14—Exports of Machinery from Principal Foreign Countries, 1891–1906 (in thousand £)

	To All Countries				To United Kingdom			
	1891	1896	1901	1906	1891	1896	1901	1906
Germany*	3,370	5,747	10,033	18,358	114	193	717	1,302
United States ..	3,399	4,503	10,378	16,020	627	1,000	2,434	2,229
France	1,207†	1,846	2,238	3,301	71†	115	124	170
Switzerland	845	1,202	1,862	2,512	27	36	144	77
Belgium	1,637	1,354	1,650	2,543	73	75	161	462
Austria-Hungary ..	366	289	450	1,168	5	9	7	10
Total ..	**10,824**	**14,941**	**26,611**	**43,902**	**917**	**1,428**	**3,587**	**4,250**
United Kingdom ..	**15,818**	**17,014**	**17,812**	**26,772**	—	—	—	—

* Including motor vehicles. † 1893.

149 **Comparative Growth**

These tables show that the comparative positions of the machinery industries of the United Kingdom and foreign countries have been reversed in the last fifteen years. In 1891 the machinery exports of the United Kingdom were £5 millions more than those of all these competing countries together; in 1906 they were £17 millions less. The comparison is more remarkable if the growth of Germany and the United States is contrasted with that of the United Kingdom. The United Kingdom increase has been by £11 millions or 70 per cent. while the German increase has been by £15 millions or nearly 450 per cent. and the United States increase by over £12½ millions or 370 per cent. In considering this relative growth account must be taken on the one hand of the larger populations and more extensive railway systems &c. of Germany and the United States and on the other hand of the fact that owing to the larger proportion of the population of the United Kingdom which is engaged in manufacturing, the consumption of engineering products per head is greater than in foreign countries. The home markets in these three countries are probably therefore about equal in extent.

The totals for 1906 are further analysed in the following table:—

150 **Distribution of Exports**

TABLE 15.—DISTRIBUTION OF EXPORTS OF MACHINERY FROM PRINCIPAL FOREIGN COUNTRIES IN 1906 (in thousand £)

	United Kingdom	Rest of British Empire	Rest of Europe	All Other Countries	Total
Germany	1,027	370	12,346	3,713	17,456
United States	2,229	3,918	3,284	6,589	16,020
France	169	11	1,753	1,368	3.301
Switzerland	77	24	2,139	272	2,512
Belgium	462	45	1,224	812	2,543
Austria-Hungary	10	3	1,131	24	1,168
	3,974	**4,371**	**21,877**	**12,778**	**43,000**
United Kingdom	—	**7,867**	**10,400**	**8,505**	**26,772**

151

It is seen that one half of the total machinery exports of principal foreign countries went in 1906 to other countries on the Continent of Europe. Of the remainder 40 per cent. was exported to the British Empire, these exports being about equally divided between the United Kingdom and the rest of the Empire. All other countries, principally South America, China and Japan, took the remaining 30 per cent. These proportions vary considerably in the case of each competing country as follows:—

Germany—To United Kingdom 6 per cent.; the rest of the British Empire 2 per cent.; other European countries 71 per cent.; all other countries 21 per cent.

United States—To United Kingdom 14 per cent.; rest of British Empire (mostly Canada) 24 per cent.; European Continent 20 per cent.; all other countries (chiefly South America) 41 per cent.

152 to 400

France—To United Kingdom 5 per cent.; rest of British Empire, practically nil; other European countries 53 per cent.; all other countries 42 per cent.

Switzerland—To other European countries 85 per cent.

Belgium—To United Kingdom 18 per cent.; to other European countries 48 per cent.; to all other countries 32 per cent.

Austria-Hungary—To other European countries 97 per cent.

Thus it would appear that the chief export trade of competing European industries is done with European countries and that the greatly increased machinery requirements of these European countries have been chiefly met by the rivals of British manufacturers. These European countries are bound together by a network of treaties and it is since these treaties that the great expansion has taken place.

Fuller details of the course of the import and export trade of these foreign countries are given in Tables 43 to 61 in the Appendix.

SECTION III.—EVIDENCE OF WITNESSES 401

The following is a full summary of the evidence of witnesses. The only omissions are portions of evidence which the witnesses desired to be treated as confidential for trade or personal reasons.

WITNESS No. 245

MR. A. BERGTHEIL

(Bergtheil & Young, Limited, 12, Camomile Street, London, E.C.; Engineers and Electric Power Specialists).

State of Trade

The business due to the widening of the electrical enterprise has undoubtedly increased and is undoubtedly increasing, but we find that German and foreign manufacturers can compete against us with great facility. There can be no doubt that a great deal of the machinery, both in this enterprise and others, exported to our Colonies as of British manufacture, is in reality of foreign make.

Labour

There can be no doubt that we are at a still greater disadvantage in competing against the foreigner where the prime cost of the article to be manufactured is in the greater part labour. Really *skilled* labour 402 in this country is hard to find, and though the question of material is a very important item which enters into the cost of our goods, in nine cases out of ten it is the labour which influences the cost of production and the power to produce against our foreign competitors. The greatest difficulty we encounter is in securing reliable labour, both as to the class of labourer and the price at which he can be obtained. We cannot afford to compete against an influx of goods shipped from abroad at 25 and 30 per cent. less than the price at which we can produce here, which goods are probably the overplus of the current article for which there is a constant demand in the country of origin itself.

The Foreign Workman

Not only is the foreign workman—I speak more particularly of the German and Belgian—a more intelligent and better class of labourer, that is to say, of a better social class, but he takes more actual interest in his work, and the foreign manufacturer therefore obtains, for his wages paid for that foreign labour, more than he would do paying the same price in this country for British labour. In other words, price for price, one receives more for one's money with foreign labour than one does with British, and therefore the labour is consequently cheaper. The mechanic is much better trained, and is a much more educated class of man. He is as a rule steadier and thinks more of his work than the average British workman, who generally is more interested in the next football match or the nearest public house than he is in his work. By flooding our market with foreign goods, the foreigner curtails our trade, and so injures the skill of our workmen by causing a want of continuity of employment, and the employer is prevented giving the necessary encouragement by increased wage and more continuous work. The workman abroad, especially 403 in Germany, is far better educated, owing in a great measure to his obligatory military training and also to the fact that he is forced to learn a certain amount in the ordinary schools, where he receives a far better training, both from a social, economical, political, and disciplinarian point of view. When he leaves school and enters the army he is not such an ignorant man as most of our workmen, and can demand a fair price for his labour.

Education of the Foreign Workman

This is the most important factor in the whole question and is the keystone to the whole edifice which I fear is fast decaying in this country. The workman here is, generally speaking, of a much lower order than the foreigner, and is accordingly less efficient. He is less thrifty, takes less interest in his work, is fonder of outdoor amusement, is more addicted to drinking, and is altogether a less educated man than the foreigner. To pass through a German or American factory one notices immediately that both the women and men employed abroad keep themselves infinitely more tidy, and take a much more intelligent interest, not only in their work, but also in themselves and their social condition. In fact, there is a more general self-interest and desire to improve. They find that they can obtain a "quid pro quo." The result being that from good men better men are produced among the working classes abroad, while in this country I am afraid there is a tendency to deteriorate. The schools in this country are in a great measure to blame for this state of things. The masters themselves are generally poorly paid, and consequently not as efficient as many of those abroad. There is also a very small percentage of self-educated and self-improved men, 404 who are often the most valuable, to be found in this country.

Employment in America

From my visits abroad I find that the manufacturer there is able to pay a better price for the extra skill of the workman, and has no difficulty as to the continuity of the employment of that man. It is quite a common practice in America to give a good skilled workman a five years' contract, or even more, which I should say was the exception in Great Britain. I have often asked, "How can you do this? You may not have employment for them for so and so long." And the reply has always been: "We are pretty certain that we can keep our good men, and we can always get rid of the inferior ones." In fact, the American manufacturer can always rely upon a certain output in the year for home production, and the surplus he can send abroad at low prices.

Our Sources of Information

The manufacturer in this country does not keep himself informed sufficiently as to what his neighbours are doing, and when he finds himself cut out by the foreigner and his workmen become slack, he finds himself unable to take the risk of keeping his best men, who drift from place to place, which fact has a prejudicial effect upon the men themselves. There can be no doubt that the reason that a great number of employers do not dare to make long contracts with their best workmen is that they cannot depend upon a constant demand, and in consequence many of our best skilled workmen have in many cases left this country

405 for America and even the Continent. I have seen many English workmen working in the principal factories in America, and having been through the principal works in America, Canada, and on the Continent, and having conversed with the managers, I have good reason for saying that the condition of affairs is as I put it. The reason to my mind is simply that due to the great demand for foreign goods the workman can secure a better continuity of employment, and the foreign manufacturer has a certainty upon which he can base his calculations of costs as against the demand in this country, which is fast becoming spasmodic. The manufacturer can therefore manufacture under far greater advantages and in larger quantities. He can better encourage his men and better purchase his raw material, which he gets at lower prices for larger quantities. In short, he can put himself in the best position possible to manufacture at a cheap rate.

Patents

There is no encouragement to the self-educated man to improve an article, for the present state of the Patent Law is such that even if he obtains protection for any improvement he has such difficulty in upholding his patent that he is at once discouraged from taking it out. In Germany it is vastly cheaper to uphold a patent, and the facilities given to the inventor and manufacturer are far greater than here, and the whole regime appears more thorough and businesslike. The nett profits of the electrical enterprise have, as can be seen by the balance-sheets of most of the large manufacturing concerns, almost entirely vanished, and it becomes impossible to make a profit unless one can secure a speciality or patent. The manufacturer here cannot manufacture to compete with the German, and the German knows that the
406 expense and risk of fighting a patent in Great Britain are such that he does not hesitate to copy it. I have had little experience with the new British Patent Law. From what I hear of its working it does not better things much.

Raw Material

The electrical industry, like many others, depends to a very great extent upon the prices at which it can get its raw material, which materials emanate in a great measure from British Possessions and Colonies. We now find that the German manufacturer can come to the London market and purchase many of his "matières premières" imported from those Possessions, take them to Germany and, with his cheap and better labour, manufacture the article there at a lower figure than can possibly be done in this country. One of these articles is an insulating material in which alcohol is largely employed. In Germany this latter is free, whilst here it pays a very heavy duty. Mica is another article which enters into the manufacture of insulation, and for which the manufacturer depends almost entirely upon Canada and India. The foreigner can purchase this raw material at the market in London, or upon the spot in Canada or India, and take it to his country free of duty, produce his manufactured article, and sell it over here at considerably less than we can manufacture, although the principal materials from which it is produced are derived from our own Possessions and Colonies. This applies also to rubber and many other articles for which the Germans are dependent upon us, but they can secure it with as great a facility as we can, and can compete very favourably against the Britisher. We spend our money and blood in obtaining possession of the country which produces these materials, and at once give the control of the market away to our competitors, who
407 come to our country and take the trade from us. If this is to continue it must mean that if the foreigner is given the same facility to produce in our Colonies as the home-born Britisher a loss of trade must follow. He will send those goods to his manufacturing centre in Germany, or anywhere else on the Continent, by foreign ships and foreign carriers. The broker and merchant in this country will soon become extinct. The insulating material to which I refer, in the manufacture of which mica and rubber are largely used, —I mention these two articles simply as an example—has further been singled out by the German Custom House for a duty of 15 per cent. under the new German Tariff, which puts the case in point almost out of argument. If these facts are not convincing enough in themselves, we cannot dispute the following:— Here are raw materials produced in English Possessions upon which the following profits are fast going to the Germans:—(A) The profit of the merchants in England upon the raw produce. (B) The profit of the English shipping company in carrying the goods to London. (C) The profit of the carrier in carrying the goods in London. (D) The profit of the English broker in selling the goods. (E) The final profit of the English manufacturer in working up these products into the manufactured article. This country has always had the production, the means of conveyance and the manufacture itself in its own hands, but these are now pirated by the Germans with a final duty of 15 per cent. against this country. My experience is that the foreigner, the German in particular, will secure his raw material in the best way he can, and can do so quite as well as the Englishman himself. I have an instance where a German has sent his own brother to India and other British Colonies for the purpose of mining mica, and he gets this stuff direct from the mines in the British Possessions, ships it by German
408 steamers to Hamburg, and eventually becomes possessed of the deposits in our Colonies and Possessions on exactly the same lines as the Englishman. There is no protection given to the British subject, and the German watches the trend of affairs much more closely and eventually gets his Government to apply the duty to the manufactured article, and prevents the British manufacturer selling his manufactured goods to his own country, though he deals with Great Britain with impunity against the British manufacturer, in spite of the fact that the raw material is obtained from Possessions which belong to Britain, where he works without any interference or restrictions. It should, I think, be our duty to see that from our own mines and our own ground, which have been secured at great sacrifice to the country, we should be the first to make a profit and not give the proceeds away to the foreigner for nothing, for him thus to react against us here. There is no reason, if proper encouragement were given to the Englishman, that we should not be able to pay as good a wage for English labour as for foreign. There should be employment for our own people abroad, whereas the foreigner is now competing not only in manufacturing, but in mining and the like. I would suggest that the British Possessions should give more advantages to the home country, and some duty should be put on goods exported from the British Possessions to foreign countries, and an import duty should be put upon the foreign finished article. I am not of opinion that a wholesale clapping on of duties would meet the case. Duties would have to be imposed carefully and after a great deal of study, for the first reason for the apparent decay of British commerce is the loss of "nervous

energy" in the younger generation of commercial men, due, I think, probably to the apathy caused by the financial success in the past of British manufacturers, exporters, &c., whose descendants are consequently not so dependent as their predecessors upon making money, and have not the same interest in the commercial welfare of their country as their forefathers. **General Social and Commercial Conditions** 409

Public school and college life has no doubt done a good deal for the advancement of Great Britain in her Colonial expansion, but has also had its effect in producing a sporting nation, whose whole being is wrapped up in sport, to the detriment of other interests. Unless, therefore, something is done to remedy this evil in the coming generations, no fiscal reform will ever eradicate the evil at its root. Fiscal reform can only tend to give to the country "breathing time," provided its other ills are remedied, otherwise it may lead to a still more apathetic state of things, to the benefit of the few and to the further destruction of the many. Again, protection should be very carefully applied, and more particularly to only those manufactured articles where the proportion of labour exceeds that of material. Great Britain to-day is fast becoming, and has even become, the factor and the agent of the world, and it is only due to her former connections abroad, through the old-standing commercial houses which her ancestors have built up in her Colonies and Possessions, that she is able to-day to handle the vast export trade that she does. The moment that the foreigner sees that he can import his goods and re-export his manufactures without the assistance of London, he will do so, and this tendency, as any Continental merchant will admit, is increasing very much.

410 To sum up, my suggestions would be :—(A) To teach the younger generation the necessity of taking interest in commercial, economical, and social conditions. (B) To improve the standard of the principal teachers in our middle-class and lower-class schools by replacing many of those men possessed of a certain amount of book-learning by those capable of reasoning and imparting that reason to their students. (C) To study the question of fiscal reform *commercially*, through the intermediary of thoroughly commercial men, and not necessarily by the selection of men from the largest commercial undertakings, who are often too old to any longer go with the times or trend of affairs and change their views, which is necessary if Great Britain is to keep abreast of the competition of to-day. (D) To endeavour to induce more commercial men to enter Parliament than at the present moment. The success of Germany is largely due to the close intercourse that exists between the commercial and political institutions. Her very Government is composed in a great measure of commercial rather than independent representatives, who are consequently more able to deal with these problems, and have more experience in them. A commercial man is not necessarily a diplomat, but a diplomat is seldom a commercial man. It is social, economical, and political education that is first at fault, and consequently the implements are not forthcoming to carry out what this education would tend to suggest for the remedy to the country's good. It must not be forgotten that whilst possibly this country is doing an export business of so and so many hundred millions annually, the profit made upon those exports is nothing at all in proportion to that made years ago when Great Britain was a manufacturing community. Probably where a profit of 50 per cent. or 60 per cent. between the manufacturer and the consumer was made in those days, the factoring or agency profit made in dealing in foreign or partly foreign manufactured goods to-day is hardly 10 per cent., so that where apparently the profits of the nation are increasing, it is quite possible that, in reality, they are either remaining stationary or decreasing. 411

WITNESS NO. 246

MR. HUGO HIRST

(General Electric Company, Ltd., 71, Queen Victoria Street, London, E.C.).

I will divide my evidence into three sections: (1) General engineering, including machinery and electrical fittings of every kind, but not cables; (2) Incandescent Lamps, as being a special industry; (3) Carbons, as being a new industry.

(1) General

The volume of engineering and machinery trade in this country has increased in all branches, but not in proportion to the increased demand. The number of English manufacturing concerns has diminished considerably. My company happens to be one of the few that have gone ahead. We have fewer English manufacturing competitors than we had but we have many German, French and American competitors in this country. In the early eighties England was in the forefront of electrical industry, and the check that was put on enterprise by legislation proved stronger than was intended and enabled the foreigner, on experience gained by English enterprise and capital, to build up a solid and progressive business. The possibility of utilising water power and the necessity of transmitting electricity in less populous districts over vast areas directed the energy of engineers to the development of certain systems of electric lighting and power for which conditions in this country appeared unfavourable, and the first great high tension practical successes were thus obtained abroad. The nature of our towns and streets offered many difficulties to the introduction of electric tramways while conditions proved favourable to Continental and American countries, and in consequence their principal electrical industry (transmission of energy) went ahead and for a period all intelligent material trained at foreign colleges found plenty of employment. In the middle of the nineties reaction set in, legislative interference in this country was relaxed and coal obtainable in this country proved to be as cheap as or cheaper than water power so that there was no reason why this country should not "pick up" and even surpass other countries. We had factories, and what little brain power was wanted for the design of machinery was procured cheaply from the Continent, and nothing but the well-known disadvantages of a country subject to free imports prevented the industry from meeting with success. One department, that of electric supplies, with a character of its own far superior in this country to that of any other, which was flourishing up to about 1895, has since considerably receded. The severer climate in this country required higher insulation and a better **State of Trade** 412

413 class of design in switches, cut-outs, lampholders, fittings, &c. Insurance and other companies not interested in their manufacture insisted on a high standard. A number of English firms produced admittedly superior fittings ; English potteries supplied a considerable amount of raw material for such fittings, which looked and proved better than what foreigners could produce. To-day more than half of this part of the trade has left the country, and Germany supplies fittings here exclusively built for this and the Colonial markets. Unscrupulous copying of English designs and illustrations, laxity in the working of the Trade Marks Act, facilities of freight not enjoyed by English manufacturers, are partly responsible for this. Many foreign houses are established here, most of them bearing English names, besides those sending over agents.

Profits

The total net profits of the trade generally have remained stationary during the last 4 or 5 years, but we have had to do more than double the amount of business to attain the same result. There are no branches that with time get more remunerative, but in a young industry new ideas and new requirements are always arising which for a time give the go-ahead firms a chance of better profits. Only firms with sufficient capital who could find the market in which to get rid of their commodities in quantities sufficiently large to be remunerative have been able to hold their own. Those with smaller works and smaller facilities could not compete and have gone back. I attribute the unsatisfactory state of the trade to German, Belgian and American competition, which has been felt by everybody for the past 5 years ;
414 we had indications of it 10 or 11 years ago.

Foreign Competition

Our English competitors have gone to the wall because they have not had, as our foreign competitors have, the security of an assured minimum output. This is co-existent with the present increasing demand all round even from poor people for electric appliances of every sort. This demand does not ensure any increasing output because English manufacturers cannot compete under existing conditions. The increased demand is satisfied by imports, while in every branch the number of English manufacturers is decreasing. The proportions of foreign competition vary periodically. We suffered most from Belgian competition at a time when the Belgian works had to find an outlet at any price. On a tender for St. Pancras of £12,000 in which my company was the lowest of six English manufacturers, a German company quoted £11,000 but a Belgian firm quoted £7,000 and got the contract. They made no profit on it and have since reduced their capital by about 5 to 1, but none the less we suffered at the time. The market in this country being open, the Belgian people probably thought a few contracts at any price would introduce them quickly ; but had our market been protected they would never have been tempted to dump here.

Foreign Goods Specially made for English Market

Directly goods become standardised foreign competition sets in, even if such goods are not required abroad they are specially made for the English market. This applies particularly to electric supplies. Lampholders for instance are wanted in many millions. In this country we use mostly the " bayonet " holders which in America and Germany are not much used, their place being taken by the Edison screw-socket. But to-day more " bayonet " holders are brought into this country from the Continent than we manufacture
415 at home. The holders are made expressly for this market and the Colonies. By supplying such goods at little or no profit, foreign makers get an introduction to our home market which affords them an opportunity of introducing their own specialities and getting rid of their surplus products.

Municipal Orders placed Abroad

The municipalities of this country must have spent some 300 millions during the last 10 years. About half of that huge amount had to be spent in this country for building work and road-making, but a great part was for commodities which could have been manufactured here. Had English manufacturers enjoyed the protection accorded to foreign manufacturers, this expenditure would have put industry here on an ideal basis. The money which has been spent abroad by English municipalities has more than anything else been the making of the German electric industry. Some 4 or 5 years ago the Manchester municipality had to place their first contract for electric lighting and tramway machinery. Indescribable injury was done to the electric industry of this country by Manchester ordering electric machinery in Berlin. If Manchester, the Mecca of British industry, will not supply its wants from the home market, how can we expect Calcutta, Cape Town, Melbourne and other cities less closely connected with us to entrust their contracts to us ? There was nothing in the contract that an English firm could not have undertaken and I believe that more than one firm would gladly have accepted it at the actual tender price of the foreign firm. Nominally the Corporation may have saved a few thousand pounds, and the shipping and railway companies perhaps earned a thousand pounds, but against this the country lost £100,000 actual capital,
416 £15,000 to £20,000 of wages which would have circulated amongst working people here with beneficial effects on local rates, house-property, &c. The opportunity of using home raw material, and the railway and canal traffic in iron, coal, copper, &c., would have amply compensated the railway companies for the loss of " through traffic " from Berlin. English manufacturers would have been encouraged by such an order to look forward optimistically to the enlargement of their works instead of their retrenchment. The loss of this contract meant also a loss of knowledge and experience to our working men. If this short-sighted policy is continued the discrepancy between the price at which the foreigner and the home manufacturer can respectively produce must increase. Moreover the contribution to the rates must be considered, and in case of profit, to income tax, which the English manufacturer pays, but which does not enter into the calculations of the foreign manufacturer. Municipalities give orders to firms with English names believing them to be English firms, when they are really owned in Germany.

Risks Taken by German Manufacturers

The case of the Metropolitan Electric Lighting Company at Willesden about 4 years ago affords a good example of the risks a German manufacturer is prepared to take in order to secure business. The machinery already installed was low tension (500 volts), and new high tension (10,000 volts) to synchronise with it was required. The Company particularly wished to give the contracts to an English firm but none of them would give this guarantee as to synchronisation. A German firm not only put in a lower tender but gave the guarantee and further undertook that in case of failure they would remove the machinery

417 free of charge. The amount of the contract was £60,000. This case was perhaps exceptional; we would not lose such an order to-day nor would the Germans have taken it a year or two before. It was taken in a time of depression in Germany.

American Firms in England

American companies come over here and start factories, but the result is entirely different from what they anticipate from the result attained in their own country, as will be seen by the following statement of facts. The requirements of the electrical machinery trade have drifted into what is termed three-phased transmission of power: that is a system which enables the generating station to be erected as far away as you like in cheap places in the country and to transmit energy from them into town by small wires. For the production of this kind of machinery an American company held the patent. There is a weak point in our Patent Law, because while it gives them full protection it does not necessitate their manufacturing here, consequently they intended to supply this country with machinery made abroad, and that would have suited them very well. We and others noticed this and wanted to manufacture but were threatened with legal proceedings. I applied to the Board of Trade stating that there was going to be a great future for such machinery in this country. The Board argued that waterfalls are required to get the power, but we replied that coal mines are quite as good for the purpose, and the Board of Trade authorised us to write to the American company and to say that we should be given a compulsory licence if they would not arrange to give us a licence on reasonable terms. We wrote this letter and the American company came to terms with us, giving us a licence on which we manufactured and others did the same. We secured the first big contract that was going at that time in
South Africa—in 1895—for something like £68,000. Afterwards we secured the first installation here, and 418
there was a tendency in certain quarters and on the part of large British concerns to favour British manufacturers. The American company then imported fully-manufactured machinery, but their import business suffered the moment we manufactured here. As a consequence they started their own factory in this country. This shows how it would help us if our Patent Law were to demand a *quid pro quo* for protecting a foreign patent and impose on patentees, no matter what the subject of the patent, an obligation to manufacture here. It was not convenient to us personally that the American company started manufacturing here, but to the country generally it brought knowledge, money, industry and employment. Having started here, they soon found that they were by no means to have things all their own way. They were affected not so much by the competition of English manufacturers as by that of certain German firms. Having no assured minimum quantity to rely upon the American company already referred to could not manufacture in anything like such large quantities as in the United States, and they soon felt the same pinch that we and other English manufacturers feel. Consequently the alleged superior knowledge and technical skill of the American—much over-rated to my mind—have shown, when faced by the same conditions, precisely the same impotence that English manufacturers are blamed for. There is considerable disappointment about the financial standing of the American company and the manufacturing losses they have sustained in this country.

Foreign Conditions of Manufacture

When we saw what certain competitors in America and others in Switzerland and Germany were doing,
we were disposed to imitate their progressive policy, but when we took into consideration the conditions
existing in this country, we found that for us such a policy was impossible. When for example a firm opens 419
a factory in Berlin for making tramway motors or dynamos and generators for electric light stations, a large proportion of the consumption in their own country is assured to them, not only by the duty but by legislation which enacts that Government, municipalities and such corporations as tramway, railway, gas and water companies enjoying public charters must up to a certain margin favour the home manufacturer. Now assuming that one has the right engineers and the capital to put down the right machinery, one would be imbecile if unable to secure a fair share of business in such a country.

Water Power

It is now admitted that except the St. Lawrence River, Niagara and perhaps four or five other water-power installations, there is not one that does not need a steam installation as reserve if it is to work all the year round. In 96 per cent. of the world's waterfalls the maximum and minimum power are so widely divergent that the scheme does not pay. A large number of water-power schemes, started all over Europe some years ago, have been either financial failures or have been abandoned. That does not disprove the utility of water power, but it means that there is seldom a constant supply—a most important matter. A waterfall with a constant supply like the Rhine Falls or Niagara is better than a coal mine, but the advantages that were promised from waterfalls all over Europe and which made us fear our industries would be taken away, only exist in a few isolated cases.

Materials

420 The principal materials, manufactured or partly manufactured, which we use are iron, steel, copper, china and brass. Our facilities for getting them in this country are better than anywhere else. We buy them as favourably with regard to price as other countries do. In 1896–8 when we introduced three-phase machinery we had an arrangement with a Swiss company to either buy from them at cost price plus a certain profit or manufacture here and pay them a royalty of about 7½ per cent. It was then our mutual interest to investigate where the prime cost would be cheaper, here or in Switzerland, and we found that the advantages of Switzerland in labour and water-power are counterbalanced by our advantage in the price of raw materials. We import some partly-manufactured specialities occasionally, as for instance when somebody has an exceptionally good material for bearings, but there is no compulsion, and it is not on account of price.

Labour

The discipline of foreign workmen, especially Germans, has a distinct effect on prices. In works where a great portion of the capital is invested in machinery, buildings and staff, we rely on the men turning up regularly to work, but in England if a football match takes place on Wednesday or Saturday within a short distance of the works, 300 out of 700 men will not turn up. The deduction of 3 or 5 hours' wages does not recoup the loss, the work of the remaining 400 men not being done as efficiently in the resulting confusion, and the general charges have to be distributed over a much smaller output of work. Thanks to the discipline enforced in Germany every man must have a character. Under their arrangements as to hospitals and old age pensions every man must have a record of his life since he left school. If he were a bad time-keeper his

421 record would show it. This information is distinctly an advantage to the German manufacturer and its absence a disadvantage to ourselves. Some trades suffer much from "St. Monday." The electrical industry includes the brass-finishing and china trades, as well as wood-working and glass-blowing, which cannot all be carried on under one roof and we suffer considerably from lost time in some districts. We have been able to keep our English works going pretty well, employing the same number of men, but we have had to distribute them differently at various times.

Wages

More machinery is being introduced and as soon as standardisation is adopted cheaper labour supplemented by machinery has to be used. We have been able to compete by training unskilled labour. In the engineering branch we have always paid for good men the wages that the Unions desire, 38s. or more. But on the question how many such we employ, how many improvers and how many boys, we use our own judgment. We pay many of our men considerably more than Union rates. Many of these have received their entire training in our works, starting as apprentices.

Trades Unions

The Unions have tried once or twice to interefere with our mode of working, but so far we have not suffered much. Our attitude towards the Trades Unions has always been to support them so long as they give us a guarantee that their members are efficient workers. We secured some time ago a contract for Fulham, and the Trades Union watched us so closely that they nearly produced a strike, because we allowed some pensioners of the firm to sweep our floors. In the contract it was provided that any unskilled labour employed should
422 have Union wages. We understood the latter to mean men used on building, trench-digging, &c., but they claimed that shavings falling off the machines had to be cleared away by men similarly paid. We have to consider such points in our estimates because a foreign contractor probably 6 per cent. or 7 per cent. better off than we (as he can work longer hours and the State supplies him with better-disciplined men) gets the order if only 1 per cent. cheaper.

American Engineers

American firms in England are experiencing what others have experienced before, that an American engineer is not necessarily heaven-sent. Some Americans who came over from 8 to 10 years ago were extremely capable men, who would have done well anywhere. Eight or ten of them have become prominent in this country and have done exceedingly well. That accident gave rise to the impression that all Americans were of this superior order. But as a matter of fact American firms who have started here have all been glad to employ English labour instead of the American labour they had imported and with few exceptions have taken on English engineers and assistants.

Technical Education

Their system of technical and scientific training has given foreign countries a distinct advantage, although this training has not been the principal means of ousting English manufacturers from the markets of the world. Under better conditions our electrical industry might be very prosperous and need never have felt seriously the so-called superior education of German engineers. Whilst fully believing in higher education I discountenance the idea of technical training for everybody. In Germany technical training
423 has been carried to a very high degree with very poor results commercially. The Germans have been successful in imitating, but have produced very little that is new. It is the practical men in this country and in America who have brought out the new things in engineering. The technical training of Germany has produced many men excellent for laboratories and in calculations, but not the men who have brought German industry to the front. The heads of successful German and Swiss concerns are men with an excellent all-round education who have had some cosmopolitan experience especially in America and England, and they possess great commercial ability. The technical training of workmen is not carried very far; it is left to individual firms. In towns where special industries are carried on they have schools and classes for training the men, but generally the State or the municipalities do little more than is done here for the training of workmen. Generally speaking, what we hear about the technical training of workmen abroad is greatly exaggerated. They get most of their knowledge in the factories. A prominent American engineer confirms my own experience that the average English workman produces more and better work than the average American or German. Technical training for workmen in a large way is impossible. Some types of men are more inventive than others, and the German race produces as many great and inventive minds as other races. Many of them cannot endure the restrictions of routine and pedantry in Germany, and therefore France, England and America have become the home of some of the most brilliant Germans. In the United States they have every nationality and more invention than anywhere else; it is not a question of race but of individuality. The large works in this country employ the same
424 percentage of scientific men as do the large works in America. Highly-trained scientific men in small works are sometimes dangerous, their ideas and methods being beyond the limited means and organisation of small firms. Every works requires about 1 per cent. of highly scientifically-trained people, but every member of the staff could or should be highly educated. University men are wanting in technical training, whilst men from technical colleges have the good technical training but often a very inferior general education. In interviewing an applicant for a position I usually consider the following points: 1. Gentlemanly bearing. 2. Good physical development. 3. Quick comprehension and conception of figures. 4. A retentive memory. 5. An "open mind" and power to grasp problems. 6. A sufficiently complete all-round education to be able to take up successfully any speciality that the applicant might afterwards have to make his own special province. 7. "Secondary accomplishments" such as shorthand, languages and drawing; these qualifications are often the reason why one man of apparently the same quality and knowledge as another makes so much faster strides.

Disciplinary Effect of Military Service

Military discipline through which all Germans have to pass may in some way account for their want of initiative, but the chief reason is the school training. German schools are a wonderful training for discipline and making a man dutiful in every respect but the teaching is so pedantic it nearly kills originality. When a man joins the army he is told that unless he does certain things he will be shot. He then learns among other things to get up regularly in the morning and after a while regards it as a crime

425 to be 5 minutes late. After he has practised these habits for 2 or 3 years they work themselves into his constitution. Compulsory service and compulsory education level up the great middle classes to a higher standard of education and make them more useful for all kinds of purposes. Classes are more clearly defined in Germany and France than in this country. Almost any man who has gone through certain schools there can be safely selected for positions which could only be filled here after most careful selection. The training also makes the working class cleaner and raises the standard of living generally. The workers may be discontented with the Government, but they are cleaner in themselves and in their homes than our people. In an average German manufacturing town on Sunday you would not mind dining at any one of the workmen's tables. But you would hardly care to try the experiment at Sheffield or in some parts of Salford or Birmingham.

Commercial Travelling

The discipline and training of German elementary and lower middle class schools supply better material for commercial travellers than our system does. A constant stream of young men leaves school in Germany with good handwriting, excellent training in arithmetic and some slight knowledge of foreign languages. Their school training and military service teach them to be dutiful and painstaking and sufficiently subservient and well-mannered to get an *entrée* anywhere. The large supply makes them a cheap commodity and no one is sent out to travel unless he has had a good training indoors. By this indoor training the man is enabled, even if he is not very successful in securing orders, to constantly educate his own house. He knows precisely what it is his people want to know. This applies more to general 426 business than to engineering, as commercial travellers are seldom employed for that section. In England the average commercial traveller is merely a man who considers himself unsuitable for indoor work. He probably has not learnt the details of his own business and consequently lacks authority and power of persuasion with customers. In sending his reports he is usually quite oblivious as to the doings of competitors which his house is thirsting to know. Good English commercial travellers are rare and very expensive.

Business Organisations

Rents, commissions and salaries in big towns are about the same in this country as in the principal competing countries. In Berlin, owing to its industrial prosperity, rents are beginning to be higher than in London. Formerly there was no comparison, everything here was much dearer. I happen to be connected with an English company operating in Berlin, so that I have had some experience in these matters. Salaries are as a rule lower in Switzerland, Germany and Belgium than in this country, but business organisations abroad are more complicated; more men are required to do the same amount of work and this equalises the general expense. In engineering businesses you very rarely see one signature, there are nearly always two. Where we have a single responsible works manager or one man responsible for a design, you will find in foreign concerns two or three men dividing the responsibility. The drawing-office of a fairly prosperous English company has about one-third the staff considered necessary in a foreign office. The practice here is to trust to your man and give him a chance, while there they put more faith in a system. As a result these supernumerary people have to share among themselves a total wage 427 which renders each of them the recipient of a small salary. Our works manager gets considerably more than the manager of any of our Berlin competitors, and yet we pay less for the work he has to do than they pay for the work of their organisation. This Continental usage does not apply to the United States where they pay higher wages than we do and work more on our principle of placing chief reliance on the man. The work of the German, the Swiss and the Belgian is not in any way more efficient than ours, nor does their more cumbersome system turn out more efficient work, but theoretically it has advantages in that you can trace blame and apportion responsibility more easily. There is not however the same individual interest and incentive to make a success of a particular job as there is with us and the Americans.

Elements of Cost

The proportion of our elements of cost varies very much according to the particular branches. Except in special industries where manual labour is the principal portion of the work, nearly everything can be made as cheaply in this country as elsewhere. I have had working arrangements with Swiss and American firms whose patents or designs we use on a royalty basis, and it has been to the interest of both sides to prove whether a certain article could be made more cheaply abroad or here. Under equal conditions (*i.e.*, for the same quantity) the result has nearly always been in favour of having things manufactured in England. Quite recently a contract from America for 340 motors for underground railway lifts in London was to be placed on the basis of American cost prices, and we were invited to compete on the basis of producing actual cost prices for comparison. Three types of motors were under consideration and 428 for each type we managed to be a shade cheaper. The details showing how we arrived at our cost prices were closely scrutinised and being found correct we secured the order. Wherever an English manufacturer can quote under similar conditions to the foreign manufacturer the much-talked-of inferior education, lack of enterprise and want of skill, seem to disappear and he is quite capable of holding his own. But the opportunities given him to do this are denied him not only abroad but at home and he must inevitably lose ground, for in modern manufacturing everything depends upon a definite quantity. As to the foreign systems of checking in the shops and general methods of accounting there is no difference. Systems all the world over are much alike.

Relation of Output to Cost

In no trade is the effect of quantity on the actual cost so much felt as in engineering. A motor made to an order for two or three must be accurate, it must be made by machinery, tools and patterns must be just as exact as if 100 were required; so that a motor which in the small quantity would cost £150 prime cost could be made in quantities of a hundred for £75. What chance has an English manufacturer with his uncertain market against the foreign manufacturer with his assured market? Here we have nothing secured to ourselves, and for that reason nobody cares to lay down works and manufacture on the same scale.

Railway and Canal Rates

The control of so many canals in this country by railway companies makes the advantage of water freight a myth. In Germany the water freight rate is considerably cheaper than the railway rate which for

429 hardware and bulky stuff is less than half what it is in England. The average per ton per mile in Germany and Austria is less than half of ours and by water there is a further reduction. We have property near Birmingham and we wanted a railway siding. The London and North Western Railway demanded £4,000 for their siding and it would have cost us an equal amount to complete the rest on our own property, which comprises about 150 acres. This expense seemed great enough in itself but when we went into details we found that the company would charge us Parliamentary terminal rates—and these were in some cases dearer than the ordinary competition rates from Birmingham. Consequently there was no saving to be effected by constructing the siding. Compare this with what the Swiss Government have done. Right round Zurich they have built a railway on which any manufacturer can have land cheaply. The moment he has an article manufactured in his shop it is practically free on rail, putting English manufacturers at a very distinct disadvantage. The advantages of protection do not lie merely in the amount of the duty but in the fact that that system necessitates commercial treaties watched by a Government department such as a Ministry of Commerce. Such an organisation would be like a man in his counting house constantly noting the working of the various industries in this country and comparing them with those abroad. A number of weak points are certain thus to be brought to the front. The Austrian Government watches the earnings of the railway companies and if too high reserves to itself the right to put rates down on certain goods which suffer from foreign competition. We have to-day certain articles which cost 30*s*., fifteen years ago the same articles cost £15 for the same quantity yet the railway rate to-day is exactly what it was 15 years ago. In protected
430 countries manufacturers are enabled to bring such grievances before a Minister of Commerce and his department can investigate and remedy them. It is not left to a single private concern to carry on a hopeless fight against a powerful railway company. A Free Trade country leaves the most vital interests of industries stagnant for while freights are arranged yearly on the Continent here they are only arranged about once in 10 years or more. In Germany for the large canals steamboats are used, for the small canals horses, and in some districts they are trying electrically-propelled boats. Materials for manufacture are wanted at regular intervals. It is often necessary to buy the things abroad and wait three months for delivery, so that the year's supply can be arranged accordingly: speed on the canals is not therefore the main point but in England there is no appreciable saving in the rate as compared with railway rates.

Continental Canal Systems

Governments abroad always have a certain control over canals. In Germany the canals and railways belong to the Government, in Austria they do not. Yet in Austria they do exactly as in Germany. In order to open the whole of Germany and not one section only, to the export business (which is principally to England and the Colonies) the Government have constructed a large and important harbour at Frankfort, which enables Nuremburg, Munich and other South German and Austrian towns to send their goods by water. If these goods are marked "Export" they are conveyed at about half this cheap rate. To deal with these goods, they have built a special line of steamers direct between Frankfort and Rotterdam—a sort of daily train of State steamers. In Austria the canals belong principally to private companies, but in order to make use of the Elbe (from Hamburg to Austria) the Government have arranged to make the town of Tetschen an inland
431 harbour similar to that at Frankfort. From Tetschen a regular service of steamers will bring to Hamburg the Austrian products, such as small woodwork and Bohemian glass, and thus open up the whole of the country to the export business. Our own railway companies very kindly give them cheap transport from Harwich to Bath or to Dublin, and people who import carbons and electric machinery from Vienna can get a much cheaper through rate from Harwich to Bath than we can get from London to Bath or Dublin.

Canals Neglected in England

There is an unfortunate tendency in this country to look upon water communication as an obsolete mode of traffic. In Continental countries on the other hand the natural water communication is superior to ours and at no period has water traffic been more developed than during the last 20 years and the process is still going on in Germany, Holland and France.

Fraudulent Classification of Foreign Goods

No allowance is made here for the frequent malpractice of foreign importers who classify their goods in rate classes to which they do not properly belong and thus effect a further saving. The railway companies apparently shut their eyes to this fraudulent practice when the culprit is a foreigner, but an English manufacturer attempting the same would be treated as a dishonest person.

Preferential Railway Rates for Foreign Goods

Our industry is handicapped by the excessive railway rates that exist here as compared with rates for similar mileage existing on the Continent and railway companies are allowed to give foreign importers cheaper
432 rates on English railways than they give to English manufacturers. In the case of one factory near Birmingham where we employ 900 or 1,000 workmen the railway company get from us the traffic of all raw material going to the works and also the very considerable traffic of the men living about there. Yet the freight rate of our finished product from Birmingham to Dublin is actually higher than the rate our Nuremburg or Vienna competitors have to pay to this same company when using their system. The freight from abroad is not always cheaper but on one of our principal railways the Vienna man has to pay only a fifth of what we have to pay for the same distance. That injustice is one of those apparently side issues which will decide whether a high or a low tariff is required.

FOREIGN TRANSPORT RATES FOR IRONWARE, MACHINERY, WOOL, PER 100 KILOGS. FOR 10,000 KILOGS.

(100 pfennig = one shilling approx.)

From	To	Pfennig	From	To	Pfennig
Dresden	Berlin	91	Berlin	Hamburg	138
Munich	Frankfort	196	Frankfort	Cologne	108
Dortmund	Bremen	121	Dresden	Hamburg	50–70
Breslau	Stettin	70–80	Cologne	Rotterdam	50–60

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ENGLISH TRANSPORT RATES PER TON FROM LONDON

		Machines in parts in cases.	Wood rough.	Wood half finished.	Raw wool.	Dressed wool.
		s. d.	s. d.	s. d.	s. d.	s. d.
To Belfast,	Rail ..	50 0	50 0	60 0	50 0	60 0
,,	Boat ..	40 0	40 0	48 4	40 0	48 4
Glasgow,	Rail ..	51 8	51 8	72 6	51 8	72 6
,,	Boat ..	—	—	45 0	—	45 0

FOREIGN TRANSPORT RATES ON ARC CARBONS PER 100 KILOGS. = 220 LBS.

From	To	10,000 kilogs.	5,000 kilogs.	Route.
		s. d.	s. d.	
Vienna ..	London ..	5 6	5 8	Water.
,, ..	,, ..	7 8	8 3	Rail.
Nuremburg	,, ..	4 7	4 8	Water.
,,	,, ..	5 4	5 9	Rail.

Standardisation 434 The Standardisation Committee's work has not yet had any effect on the trade. They are still investigating. It will probably be more useful to the consumer than to the manufacturer. The latter is bound to have his own standards and whether he manufactures to one or another is not always of great importance, though it may make a difference in obtaining materials. It may possibly have a bad effect inasmuch as it may assist the foreigner to come in and if we do not get protection this Standardisation Committee's ruling will strengthen the position of the foreign importer.

Amalgamations The causes of amalgamation in Germany and America are the same that have been the ruin of so many manufacturers in this country. A small engineering firm cannot live and compete successfully against a big one unless it turns out a patented or otherwise protected speciality. On the Continent the system of working has been entirely different from the English practice. There the majority of light and power installations in towns have been the work of private companies who were anxious to manufacture if possible every part of the supply, installations, engines, dynamos, boilers, cables, &c. The bulk of the capital for these companies was provided by the banks. Every firm anxious to join the rank of competitors made more demands, frequently on the same banks. In my opinion it was the influence and control exercised by the banks over these industrial enterprises that led to successful amalgamation. In this country, on the other hand, the bulk of the money has been spent by municipalities under the supervision of their engineers and these gentlemen of course did not look to a single manufacturer for all their varied requirements. Consequently electrical industries in this country have remained more specialised, divided into smaller sections and less able to compete for big schemes in the markets of the world. Our municipalities 435 split up their contracts between cable makers, engine makers and boiler makers, and as a result electrical firms in this country remain smaller than those abroad. English firms, too, work more with their private resources; abroad nearly all the money employed has been that of the banks. Naturally when a period of depression occurred and the banks saw their money in the various concerns in jeopardy, they themselves did what was necessary to reduce expenses by amalgamation. That is how the amalgamations of Germany were brought about. Here the conditions of working were so different, and the various interests so divergent, that there have not been any amalgamations.

Patent Laws Any patent may be the means of giving the world a new master-industry and so long as a foreign patentee has the right, under the protection of English Patent Law, to supply the requirements of this country with imported products we impose upon ourselves quite needless handicaps. For instance in the telephone industry: Had our Patent Act compelled the holder of the patent to manufacture in this country, engineers and workmen here would have had an opportunity of gaining the same experience as the Swedes, Germans and Americans have gained, and our Government which is now spending millions on its telephone system and is compelled to buy abroad, could have bought all it wanted in the home market. English manufacturers are accused of want of enterprise, and the public does not realise how impossible it is to catch up an industry that has had a 15 years' start elsewhere. It is impossible for an English manufacturer to start an industry the moment a patent expires and compete immediately against firms that, thanks to the protection of their Patent 436 Law, have for 15 years been able to charge exorbitant prices and pay off their capital and machinery, as well as to train a most efficient staff of engineers and workmen. The new Act (Patents Act, 1902, 2 Ed. 7, Ch. 34) will be a distinct benefit. Under it the Patent Office will now make searches, but it does not compel a foreign patentee to manufacture in this country. The law requiring a manufacturer in a foreign country to manufacture there has proved very efficient in France and Germany.

Duties In some industries where we are very backward, or in certain sections of those industries, it is absolutely necessary to have a tariff of something like 50 per cent. for a time. A high rate of duty is required on certain novel things the foreigner is making and that we have not yet got hold of here. On ordinary goods 10 per cent. would go a long way, but on brass and china fittings we would require 15 to 20 per cent. Owing perhaps to the Trades Unions the prices at which I can buy china in the potteries here and the prices at which I can buy in Bohemia are so disproportionate that a 10 per cent. duty would not be a sufficient protection. It is not a question of my own manufacture so much as my being able to obtain the partly manufactured material in this country, and that is why I suggest 20 per cent. China can be bought much cheaper on the Continent than here, though English china is far superior, and I would put the duty on the value rather than on the weight.

437 **Effect on Prices**

The effect of these duties would be to expand British trade at home and abroad, and the consumer would not suffer in the prices at home. The increase of work at home and the consequent cheapening of production combined with the inevitable increase of home competition would reduce prices without hardship to the manufacturer, and more than make up to the consumer the amount of the duty; in fact the consumer would gain, not lose. British Corporations and the Government should be under some obligation to purchase British articles. The duty of assisting the birth and development of a new industry and of preserving it for the benefit of the nation devolves upon them. Our workmen know that all manner of English productions have been thrown off the market through German competition. We have had opportunities to tell our managers and they have passed the facts down. We have done that for years; but one is naturally anxious not to introduce political questions into the works, though this matter should not be treated as political but rather a question of bread and butter.

Effect on Labour

A protective tariff does not affect all men alike. Men in our shops see and know that they would benefit directly by protection. On each tender where we have to compete against foreign manufacturers we tell the men how much we can get and ask if they can arrange by piece work to get the job through at that price. These men know that if we get a little protection and grow busy, they have higher wages. A second class of workmen such as those employed in the building trade, &c., are not directly influenced by foreign competition. They do not realise that even indirectly they will benefit enormously. A third
438 class composed of railway officials, professional people, &c., say that protection will make things dearer all round and they grumble that they will have to pay more without earning more. In Germany and other protected countries the positions of all the people corresponding to these two classes have been improved by protection. Here is an extract from a letter from an old friend and an authority on these matters which bears out my contention. As I was anxious to have proofs of all that I had said to others, this letter from that point of view is very interesting.

"I have been very pleased to hear from you and shall be more pleased if I can be of assistance to you. The matter of course is somewhat peculiar. You desire that I should supply you with materials which favour the interests of Mr. Chamberlain. As the interests of this gentleman are directly anti-German it is somewhat difficult for me to oblige you considering I know no higher aim in life than to be of use to German commerce and to German industry. I am therefore reluctant to supply Englishmen with material which would be of use to them in their economic struggle with us. In other words, you ask from Russia a supply of war material for the Japs, but however within the limits of decency I shall answer your questions. In doing so I am confident that German progress and capacity cannot be endangered permanently even by Mr. Chamberlain. As a matter of fact I cherish the somewhat diabolical view that England is about to commit a second 'Made in Germany' mistake. Just as that law has proved to assist the development of German enterprise it is possible that now what Mr. Chamberlain is about to declare before the whole world is the equality if not the superiority of German manufacturers and of course we can have no objection to that. Therefore:—That wages and salaries have increased in Germany since the seventies—in reply to your inquiry—is an unquestionable fact. How much
439 they have increased cannot be answered without careful study. It would practically mean an absolute inquiry if you want a thorough and reliable picture of the altered economical conditions. They vary according to local conditions as well as to the different professions and vocations. A few details might illustrate this. The salaries of civil servants in the various German States vary considerably. For instance Prussia in consequence of its sound financial status has increased the salaries of its officials considerably. Bavaria has not kept pace to the same extent, and therefore it is possible for a judge in Prussia to receive 20 per cent. more than a judge of equal rank in Bavaria. The salaries in Prussia were raised in the beginning of the eighties (that was about 4 years after the introduction of the tariff) and again about the middle of the nineties. The latter rise was more considerable. Generally I would say that the increase of income to legal and Government officials has not been less than 25 per cent. Schoolmasters' salaries have been raised considerably. I should say their present incomes, according to rank, have been raised from 50 per cent. to 100 per cent. since the seventies. Private officials' salaries have been increased to the same extent; the salaries of clerks in business houses are almost as low as they were in the seventies. Municipal officials have increased salaries throughout. Post Office officials' salaries have been increased at least 20 per cent., but the rank and file, especially postmen, considerably more. As regards workmen you will probably know as much as I do, as the battles for higher remuneration have been fought as a rule in public. In our little world, in the ironmongery industry which is the characteristic of our district, we can show a considerably improved position in our workmen. I would say on an average 20 per cent. technically trained men, able mechanics, &c., are earning to-day salaries which were beyond the thought of former times. The building trades, printing trades and other organised trades, have succeeded in earning wages which are nearly double what they were in the seventies. This might be the particular information which I
440 can offer you at present. To go into details would require considerable preparation, collection of facts and organised inquiry in different offices which even if I had the time at my disposal to do so, it would not be done in the time in which you require it, but perhaps what I have told you may be of use. You will understand that I cannot guarantee the figures, but they are estimates which I consider approximately correct. I do not wish to close without adding a view which is so self-evident that I do not think I need particularly impress you with it. The argument—'Before 1878 Germany had a low tariff, practically Free Trade; now it has a protective tariff the wages are higher; therefore the cause of this must be the protective tariff' is surely not incontestable; in fact it might be entirely wrong. You might as well call the protective tariff the cause of the invention of the Röntgen Rays, or of the theory regarding bacilli. The sentence '*Post hoc ergo propter hoc*' is admittedly mostly wrong. If Germany now pays higher wages, that it must pay and can pay, there are a number of factors co-operating. In fact an opponent of Protection might say that the economic and industrial development of Germany might have been more brilliant if the protective tariff had not been introduced. These are the two views and it is impossible to state with certainty that either the one or the other is right or wrong. In the settlement of wages and salaries the development of the whole country plays an important part, the completion of German railway system as well as the attainment of German Unity of 1870 must in this be considered. The greater the advance in our technical status the greater demand there is for enjoyment. When the demand grows for what makes life worth living, then incomes must be equally increased. When once a workman is better off then the small official wants to follow in his steps too. Excuse me if I bore you with these views of mine, which I am sure are not new to you. I feel compelled to add them to ease my worried mind, as I am supplying

441 ammunition to our economic opponent, Mr. Chamberlain, and that Mr. Chamberlain is our opponent there is no doubt. Our trade would be seriously menaced if against expectations Mr. Chamberlain should be victorious. He sets up a lot of arguments to show what Protection has done. Further to this, another picture:—I love the system of short credit and cash on delivery. I would like you to do me a favour, and I hope I am not giving you too much bother. I am a member of the board of a company, and we require a good representative in Birmingham. We manufacture principally bells for dinner tables, doors, bicycles, &c., and an equal number of other bicycle supplies, and we are doing a considerable export business with England. Can you with the assistance of your Birmingham business organisation recommend me a desirable agent and induce him to apply at once to me?"

Preference

The 2½ per cent. preference in South Africa is very easily presented by a German to the man dealing with him, for he exports his goods at much lower rates of freight. But we have occasionally been able to get the advantage through this 2½ per cent. Five or 7 per cent. would be better. Our experience with Canada has been very good. The Canadian market is a very considerable one. They do not manufacture very much yet in electrical goods and more the small class than the big. The 33⅓ per cent. enables us to import the bigger machinery as against the United States. We have recently had the first few orders from Canada. We have hitherto only sent a traveller to Canada but have been sufficiently successful to lead us to think seriously of opening our own house out there.

(2) INCANDESCENT LAMPS 442

State of Trade

We do business in European non-industrial countries such as Russia and Spain, and with all British Colonies and Eastern countries. The volume of business in incandescent lamps in Great Britain has increased in recent years, being a comparatively new industry, but not in proportion to the increased demand. The total net profits in our trade have decreased in relation to turnover. All branches have become less remunerative after they have been in existence sufficiently long to become standardised. It is only new ideas, new applications or special requirements that allow us to make reasonable profits for a short time. In every standardised article the percentage of foreign imports is increasing, whilst English production is decreasing with but few exceptions. The number of incandescent lamps sold in Great Britain is from 10 to 12 millions per annum, and 4 to 5 millions in the Colonies. About 8 million lamps are manufactured here annually—1 to 2 millions go to the Colonies and neutral markets, and 6 millions are used at home. The consumption is increasing enormously because besides new installations the old lamps have to be replaced in 9, 12, or 18 months. Gas as an illuminant has in recent years made formidable progress. In certain poor districts the people favour gas not on account of the price but because it also gives heat. In the municipal enterprises of East London, West Ham, &c., electric lighting does not proceed as fast as was anticipated because with gas people save the coal fire in winter. The British home trade will expand as the yearly consumption is increasing but imported lamps continue to be used in larger numbers than British.

Output and Profits

443 Our export business is a varying one, 9 to 12 per cent. of our total output of lamps. Employment has been continuous and rather increasing with my firm, but not with the trade generally. The net earnings are being maintained but the outlay of capital, the weekly wages and turnover have to be considerably increased to attain this result. In 1899 our profits were exactly the same as in 1903 when we made and sold double the number of lamps. Owing to the fact that the patent for making incandescent lamps was upheld in this country and not in Germany, France, America, &c., the industry up to 1893 remained entirely in the hands of one concern. On the patent expiring foreign manufacturers tried to flood this country with their products and made it most difficult for English manufacturers to launch out in this industry. Very few of the undertakings that started making incandescent lamps in 1893 have survived, and these only because they endeavoured to produce a superior article and with that appealed to the patriotism of English consumers. An English-made lamp is still in favour but many foreign-made lamps are sold under English names, or by foreign concerns whose style suggests home manufacture.

Output and Prices

The price of the lamp depends not only on raw material and labour but also on the quantities made. Our market being much smaller than German or American markets these countries can produce more cheaply and consequently have better access to foreign countries where price is the prime consideration. A lamp of certain specification made in quantities of one million might cost 7d., in quantities of two million 6d., three million 5½d., five million 5d., and in quantities of 10 million 4½d. Yet there are instances where lamps have been sold in this country at 3½d. in order to kill English competition.

Municipal Contracts

444 Municipalities and other corporations, although very strict as regards the regulation and management of factory buildings, &c., have eagerly snatched at such offers without considering the harm done to the British workman. About 400 electric light and power stations in this country are under municipal control and any monopoly or special privileges and facilities enjoyed by such corporations over private enterprises should impose on the former a corresponding obligation for the benefit of the nation. The upholding of home industry should form part of our national defence. The country harbouring most industries will be the most resourceful in case of war. Government departments and municipal authorities should be encouraged as in foreign countries to support national industries.

Fair Wages Clause

When a municipality stipulates for Trades Union wages and then accepts a tender from a foreign firm it takes no steps to see that the same rate of wages is paid to foreign workmen. Conditions as to rates of wages, &c., have made considerable difference in the prices we have quoted. But all these conditions and considerations have been light-heartedly abandoned in favour of our foreign competitors.

Materials

We obtain the materials used from Germany, Belgium, Austria and France. They could all be obtained in this country, in fact one firm supplies us with a considerable quantity (we understand at a profit), but other

445 makers inform us that they could not come to terms with their men. As to the advantages possessed by the countries from which we draw our materials the quality of glass in this country is superior to that obtained from the Continent. If the price asked for is more than that from the Continent it is due to the action of the Glassblowers' Union, who have to a great exent killed their own industry by limitation of output and hours, and by limiting the number of apprentices or boy help.

Trade Unions

The Glassblowers' Union which became very strong in the prosperous Sixties and Seventies might yet do much towards bringing back so important an industry into this country. During the last few months three well-to-do and important firms in the glass trade have given up glass-making, following the example of many others. At the meeting of the Glassblowers' Union on August 13th, 1904, the Executive reported that they had so many men on their funds that they had to limit the benefits. Nothing but a big scheme of insuring workmen or of contributing towards workmen's insurance either through the State or the Employers' Federations will ever get the better and more intelligent element amongst workmen to consider the interests of employers as well as their own. A Bill should be passed that workmen who have paid into the Union a certain amount of money should have the right of drawing out at least a reasonable surrender value if they wish to leave the Union. Many workmen feel more in sympathy with an employer who knows his and their business than with a leader or agitator who does not, or when he does, is often influenced by conditions outside their actual trade.

446 **Trade Disputes**

The action of a Conciliation Board is very beneficial; I have had considerable experience in this. If workmen are in the habit of meeting employers for the settlement of disputes they gradually get a better feeling one towards the other. That has been the case with the Lanarkshire Conciliation Board. All our directors are active workers who know the details of their business, and being constantly amongst the men enjoy their confidence. We have never had a serious strike. Men have come to us with a sort of apology "The Union made us do it" and wanting us to advise them how they could get out of it and so on; but in many concerns contact between employers and men is non-existent, and men are then drawn to the Trades Union where they can get support in times of need. I am sorry for the men's sake that there is now a prospect that the funds of some of the Unions will run out altogether. The leaders of the Unions cannot be brought to see the danger—that it is only a question of years when they will have no salary. They think like Micawber that something will turn up before then.

Benevolent Fund

When we were a much smaller concern I started a Sick and Benevolent Staff Fund in which we took about a third of the shares and allowed the office staff to take shares at 3d. per share. In case of illness the office staff received from the firm two weeks' salary, but if a man were ill longer, he was placed on the Fund. We suggested that at the end of the year the amount subscribed should be divided, but a balance left in hand, and we offered to double that balance every year so that grants could be made from the benevolent fund to deserving cases. After 12 or 13 years the benevolent fund now amounts (in spite of the many benefits) to about £1.600. I intended to start something similar for the men in our works. I explained the scheme
447 to our men who took it very cheerfully as something also to bind them to the firm. I then called in Mr. Bunn, the President of the Benevolent Societies Union and learnt to my surprise that I was doing something illegal and was in a fair way to get myself into trouble. It seemed that the scheme could only proceed if it provided that men who left my firm should continue to have the same benefits as those who remained. We could not possibly turn ourselves into an insurance company, and consequently the whole scheme fell to the ground. The office organisation brought about an excellent feeling amongst the men. They felt they had an interest in each other. No collecting or lending of money was necessary; but there was always something in hand to which when an honest man was in trouble he could look for help. The fund was managed by a committee of the men themselves (I happened to be chairman) and it was an excellent institution, capable of great extension in a concern like ours. The benefit societies got the law made so that private institutions should not compete with them. We did not object to men taking up other insurances as well. We contributed largely to the fund, guaranteed 5 per cent. for all deposits and could derive no possible financial benefit from it, yet I was advised it was illegal.

Administration Charges

It is difficult to get definite information with reference to administration charges. As regards general salaries although the systems on the Continent and here are so different, they are about equalised. We pay our upper man better and give him more responsibility and power, while on the Continent there are always a number of men to check each other, the system entails less responsibility to the individual manager.

448 **Technical Education**

The incandescent lamp industry furnishes no proof that superior technical training has given the foreigner an advantage. Too much theory in this branch of the industry abroad has killed individuality, and any advantage that theoretical training may have given them in the laboratory has been more than counterbalanced in this country on the practical side. Whatever progress has been made in quality and in the reduction of prices has been the result of the manufacture of large quantities and the improvements have originated principally in the minds of practical American and English engineers.

Kartells

The keen competition on the Continent has led to the formation of a kartell in which almost every foreign lamp maker is now included. Each factory in Germany, France, Austria, Belgium and Holland was rated for its output, and the prices (which have been down as low as 3½d. or 3d. per lamp) have been raised to 6d., less a discount according to quantity for the trade, bringing the net price to about 5d. These ratings have unfortunately been made at a time when German industry was prosperous and now whenever the kartell cannot get rid of the whole of its yearly output England offers a splendid field in which to dump down the surplus. It is not possible to form a kartell in an unprotected country. Only one half of the incandescent lamps required in this country are manufactured here and the introduction of a tariff would give a chance to newcomers. Incandescent lamps would not lend themselves to a trust. America the "country of trusts" has no incandescent lamp combine. Their prices are as cheap as ours or cheaper, but not cheaper than the Continental lamps.

American Lamps

449 American lamps do not come over here in large quantities, primarily because they have an entirely different shape and socket. Lamps in America are sold in large quantities at 12 to 14 cents, that is 6d. or 7d. Here they are sold at 7½d. to 9d., and on the Continent at 5d. or less. The American lamp is a better lamp than the German ; the standard is better. That accounts for the difference of price.

Labour

The ever-increasing division of labour and the introduction of machinery diminish the proportion of skilled labour. The actual cost in labour has gradually come down from say 3½d. to 2¼d. per lamp, and if the output could be increased there are still possibilities of reducing the cost without reducing the number of employees or their earnings. The main items of cost are materials, interest and depreciation of plant and machinery. Therefore admitted that labour is somewhat cheaper in most of the Continental countries, that factor is almost negligible. Materials and cost of installation are about the same in this country as in others.

Wages

In this industry girls earn according to ability 12s. to 20s. per week, three to five years ago they earned 32s. 6d. to 45s. per week. Men now earn 32s. 6d. to 45s. per week, three to five years ago they earned 40s. to 65s. per week. The decrease is largely due to the introduction of machinery and to the decrease in profits in spite of an increased output.

Advantages of Protection

The existence of a tariff makes it incumbent on the Government of a country to constantly watch
the wants of the industry and legislate accordingly. In Germany old age pensions, hospital arrangements,
characters and discipline of workmen are probably the outcome of this watchfulness. Special export 450
arrangements have also been made in protected countries. Inland freight services by water and by land
have been cultivated and supported by the Government. This assistance has enabled the intelligent workman
to decide for himself where his interests lie, and they are not always on the side of the Trade Union. The
manufacturer in a protected country can ascertain the consumption and present production. He can size
up the abilities of his competitors and estimate his own possible and probable output per annum in his own
country. He can study the conditions of Free Trade countries open to his products and start works with
a fair prospect of success, having a guaranteed minimum consumption. He can accordingly organise
efficiently from the very beginning for the production of a minimum quantity—the first step towards success.
A manufacturer in a Free Trade country has no basis to reckon upon. He is dependent on the whims of
protected manufacturers and can as a rule go to work only half-heartedly, which naturally acts against the
efficient organisation of his works.

Duties

A 10 per cent. duty would be sufficient as in the case of lamps we have an established factory. But
in order to give other comers a chance to start factories in this country which would produce the quantities
now imported, 25 to 33 per cent. would be required for a number of years. A reduction to 10 or 15 per
cent. in three years might be a preventive against trusts. With a high duty like that it might be supposed
that the price of lamps would rise, and if the law were administered in a careless way a manufacturer might
be tempted to make the most of it, but there would be a distinct advantage in selling lamps as cheaply as now 451
if a duty were imposed, and as other competitors came into the trade we should be forced to sell them
cheaper. A larger quantity could be turned out immediately and the whole question of price turns on
quantity. It is not a rise in price we require but a secure market. Most of the things I am concerned in
producing can be sold cheaper under protection. The profit will be made in the production, not out of the
consumer and not out of the workman. It is difficult to explain to the man in the street that this is possible
but it is an absolute fact.

(3) CARBONS

The manufacture of carbons being a new industry in this country there is no history or experience to go back to. It will thus serve to illustrate the difficulties of introducing a new industry in a Free Trade country.

Desirability of Manufacture in England

The advent of electric light and power has created an enormous demand for carbons. Every arc lamp
illuminating our shops and streets, the searchlights on board ships for coast defence, our lighthouses, railways,
electric light stations, goods yards and docks all require carbon pencils, and it is estimated that 10,000,000
metres of these are introduced yearly into this country from abroad. Every electric bell or telephone is
worked by means of a battery, a most important part of which is a carbon plate. The advance of electro-
chemical science created a demand for carbon electrodes. To the best of my knowledge there was not in 1900 452
a single firm in this country making carbon pencils in a business-like manner. A few firms supplied battery
plates in small quantities for telegraph and telephone purposes, but the bulk came from abroad. Except
that the British Aluminium Company produces carbon electrodes for its own manufactures, all electrodes
required for existing electro-chemical works are imported from abroad. The motors and dynamos running
in this country number tens of thousands and each requires dynamo brushes of carbon, which brushes are
constantly wearing out and require to be replaced. Not one of these brushes is manufactured here. The
aggregate of carbon products thus imported (not reckoning what is sent to the Colonies from this country
and abroad) amounts to at least £200,000, calculating at 1900 prices. With the increasing application of electric
current this consumption is likely to double or treble itself within a few years, the average increase per year
being 7 per cent. to 10 per cent. over that of every preceding year.

Why Manufacture was not Attempted Before

The main reasons why no English factory existed up to 1900 appear to be : The existence of a number of patents which gave protection without throwing any obligation on the patentees to produce in this country, and the backwardness of the electric industry here during the middle and end of the eighties, as referred to in my evidence on machinery. The demand was created first in Germany, where the introduction of the arc lamp proceeded at a much greater rate than the introduction of the incandescent lamp. In this country the process was reversed. Abroad lighting was more encouraged by public corporations, for the railway stations

453 and for large wholesale purposes, but not for domestic use. These circumstances gave the German manufacturer a grand start. By obtaining good prices in the beginning he had in a few years paid off his installation accounts, he had trained cheap labour, and he knew by experience the best markets for raw material. He contrived too to establish the idea that suitable raw material could not be obtained in this country and that therefore no English carbon could possibly be successful. To show the prevalence of this idea the engineer of St. Pancras Borough Council, in giving a contract for carbons to a foreign concern, made a statement to the Council to the effect that this country was not able to produce carbons. I took up that statement seriously and persuaded him to test our carbons and I have a letter in which he admits that they are as good as any he has ever had. These carbons were made here before he made his statement. The engineer believed what many others appear to still believe and the instance demonstrates how widespread is the impression that carbons cannot be made in England. We on the other hand found that we could obtain all the raw materials here and decided to run the risk of starting carbon works. It seemed to us that the Government, the municipalities, railways and other public corporations were bound sooner or later to realise in what a terrible plight this country would be placed if it had to rely entirely on foreign-made carbons. We believed and hoped that they would see that it was to their interest to support such works as ours with at least a small share of their orders even assuming that carbons could not be produced in this country at the same price. This support would set the industry going and we thought there could be no doubt of our getting a reasonable return for our investments. From a national aspect we considered that our action would have the effect of
454 bringing useful science and knowledge into this country and that others in turn might be induced to take up the same industry (non-existent here up to the year 1900). Employment would be given to some hundreds of workpeople, a use would be found for certain raw materials, by-products, &c., which were formerly wasted and a certain amount of capital yearly going abroad would be kept in this country.

Difficulties to Overcome

The raw materials from which carbons are made are: First, retort carbon obtained from gasworks—a sediment or incrustation of the retort pipes. The gas companies being unwilling to sort their own waste we had the trouble of going to the gasworks to select the retort carbon for ourselves; second, tar, also obtainable from gasworks; third, soot, also obtainable in this country. If in due course we get the desired support for our carbon works we hope to establish soot works of our own. The main difficulties to overcome were: the installation of our factory and the task of securing the most modern machinery. As the machinery was not produced in this country it was necessary for us to go very carefully to work abroad to discover the best. Then we engaged the most up-to-date works manager to be found abroad, and even the bricks for our ovens were imported. They were fire-bricks of a special kind. The fact that we imported these fire-bricks and that at first the management had to be given to foreigners who brought a few trusted workmen from abroad for the purpose of teaching the British worker was of course resented by local labour. As there are certain very nauseous gases generated in the course of manufacture, it was necessary to build a very high chimney; eventually the building of this special chimney had to be carried on by one German foreman assisted by his wife and two black workmen. The local labourers, thinking the foreman was working too hard, struck rather than
455 render him the assistance he required, in spite of the fact that they were all unskilled and that we had selected them in order to find work for men out of employment in the district (Birmingham). The labour for a long time proved very unintelligent. Often three or four selections were necessary in order to find a man fitted to carry out a certain operation and this process of selection often led to the voluntary going out of a number of the man's co-workers. Carbon-making is an industry where hand-to-hand work is absolutely essential, and the various processes must go like clockwork. If one set of men goes out, the output for the time they are out is considerably diminished.

When the factory was started we took as the basis of calculation the then ruling price, which was lower than it had ever been before. The price at that time for a certain standard quality was 40s. to 42s.; the price for the same to-day is 24s. From the day our works came into being our foreign competitors whilst maintaining their prices in their own country, reduced their prices here, and in three years the selling prices have dropped over 40 per cent. And they are being still further reduced in this country with the avowed object of making us shut down our works. That object attained, it is self-evident that the prices would go up again. We cannot retaliate, firstly on account of foreign import duties, and secondly, because foreign Governments and Corporations give a preference to home industries. The duties vary from 30 to 100 per cent. and more, and are:—France 50 francs, Germany 30 marks, Austria 10 gold florins, Spain 300 pesetas, Russia 4 roubles per 100 kilos., United States 90 cents per 100 carbons.

456 Our starting these works was a great trouble to our competitors and we have plenty of evidence that they were prepared to go to any length to stop us. Certain spiteful events occurred of which one instance will suffice. We found some of our workmen with chemicals in their pockets with which, in spite of the fact that such proceedings were criminal, they had absolutely destroyed certain mixtures, these chemicals having actually been given to them by our competitors for that purpose.

Carbon Kartell

The price at which carbons sell abroad remained 40s. long after it had dropped to 30s. here, and even now it is at least 32s. to 34s. At the time we started a tacit understanding as to price existed amongst our competitors, but the position since has somewhat altered. Two of the largest German electric firms have amalgamated. One of these two makes carbons, the other does not. Hitherto the latter has bought carbons in the open market, but through the amalgamation will now be supplied by the former. Consequently manufacturers from whom this firm formerly bought have an over-production, and they have started cutting prices a little in their own country. This is why the prices have gone down abroad, but the sudden drop here was caused by the starting of our factory. I interviewed some of our foreign competitors with a view to ascertaining whether I could prevail upon them to adopt more reasonable tactics, if I made it clear to them that we were determined to keep our factory going however severe our losses. All I wished to obtain was an understanding that they would not sell in this country at a loss. I had the opportunity

457 of comparing prime costs with one of our competitors who met me in a reasonable frame of mind and was able to convince myself that the price at which foreigners now sell in this country is the cost price of material plus labour without any general expenses or profit added. For a time I thought that the conditions prevailing in this country might prevent us competing, but I have satisfied myself that we can produce here quite as cheaply as they can abroad and though we cannot go on for ever, I am prepared to try for four or five years anyhow. Only two countries have hitherto had the business, Germany and Austria, but lately a firm in Nancy, France, have started. There was at one time a small factory at Liège in Belgium. For a little while that factory even sold to England a good quality at very special prices, but only when they had a surplus over their own requirements. Those works do not come into consideration when it is a question of dumping or of influencing the market here. They are still in existence and make good carbons, but they are rarely heard of because their own requirements absorb all they make.

American Carbons

In the United States they do not use the high-class arc lamps that we do and in consequence can employ for their ordinary lighting an inferior carbon which they make themselves. This gives them satisfaction, but such carbons would be useless for arc lamps employed in this country and on the Continent. For the better-class arc lamps, for enclosed or indoor lamps, the States import carbons from the Continent.

Carbon Filaments

The manufacture of carbon filaments for the ordinary incandescent lamps is an English industry by itself. Germany can supply itself, Austria and the United States in part. All these countries can get any amount of raw material without difficulty and they resent anybody interfering with their market. 458

English and Foreign Factories

The arrangements in England to make factories clean and attractive for the workpeople should be compared with the poor and miserable sheds that are generally provided for the workpeople abroad. The conditions under which our competitors abroad produce distinctly favour them on the capital account, yet I doubt whether our Trade Unions appreciate the efforts made by English manufacturers in this direction, and whilst the Unions protect labour they do nothing to protect the product of labour.

Foreign Governments Assist Their Home Industries

The Government of each country, being the largest consumers, make it an absolute condition that only the home product may be bought by its departments. Here are extracts from Austrian and German forms, demanding an affidavit that only home products will be supplied.

From form of tender for arc carbons (State Railways, Altona, Hamburg):—"Tenderers are required to declare categorically whether the goods (to be delivered) are produced in their own home factories (im eigenen inländischen Betriebe)."

From form of tender for arc carbons and incandescent lamps (Austrian State Railways):—"Special attention is called to the fact that only goods of home manufacture will be considered, the origin of incandescent lamps and arc carbons should therefore be certified."

459 Public corporations and gas, water, tramway and railway companies, besides Government institutions, in Austria, Germany and France are compelled by law to favour the home product by at least 5 per cent. That is to say, if in spite of duty you get near their price, say within 5 per cent., they have still to give the home producer an advantage. Below is an abstract of an order of the Austrian Government recommending corporations, railway companies, and other concerns enjoying public charters to use only the home product in order to keep the industry in the country.

"The Minister of Commerce has ordered all the provincial governors to give explicit instructions to their subordinates to the effect that the home industry is to be considered first in all cases of proposed tenders; and in any case the supplies for public institutions should be drawn from home industries. . . In no case are negotiations with home firms to be broken off before tenders are awarded to a foreign firm. The Provincial Committees are to bring their influence to bear so that in orders for goods for public purposes, especially for installations of water, heating, lighting and power plants, wherever possible home industry should be preferred, and that in calculating the price due regard should be had to disadvantageous conditions of home production."

Supposing the Admiralty, the War Department and some great municipalities were to adopt the principle of employing only home-made carbon, we could at once supply rapidly all that is wanted, and we could keep the supply going very well. Through great personal efforts we succeeded in getting the Admiralty, the War Office, and the Post Office, to consider the home producer first, and for this year (1904) we have even
460 secured all the contracts; but there is no guarantee that whenever the present personnel changes, a less large-minded official might not reverse this policy. I have offered to supply at the cheapest price at which they have bought hitherto and we make a loss, still the work keeps us going. It is a certain outlet and forms a foundation on which to work, but we have not yet been able to influence anybody on the municipal side.

Freight Rates

It is extraordinary that the freight from Nuremberg or Vienna to England is very little dearer than the freight from Manchester to London, and the freight from Frankfort to Belfast and Glasgow is actually cheaper. Thus the home manufacturer is robbed of the only small advantage he might otherwise have against foreign competition in the home market. We had also reckoned on cheap canal freights for our raw material but were unable to get them. This is a matter of very great importance as our works are situated on the Tame Valley Canal. We found however that the canal was controlled by the North Western Railway and consequently offered us no advantage in freight.

Duties

A protective tariff of at least 50 per cent. would be required for a number of years to give the home manufacturer a fair start—afterwards a small protection of 10 per cent. or 15 per cent. might be sufficient to keep the industry going and to save the general public from any trust or kartell. By compelling our Colonies to buy abroad on account of an industry being non-existent in this country, we sacrifice allied interests

461 at the same time. My company have so far lost £30,000 in addition to a capital outlay of £60,000 in this venture, but we are "hanging on" to it in the hope of either a protective tariff or assistance from public bodies such as is in vogue in other countries. Should protection not come it is worth the consideration of any Government as to whether a subvention should not be granted in order to keep this industry alive. The reduction in price from 40s. to 24s. was entirely owing to our having started this manufacture. There are only four or five firms that are making carbons, and one knows what is going on. Before we started this factory we were buying carbons which we required in the ordinary way of business. Our competitors have a united policy, namely, to freeze us out in order to keep for themselves the command of the English and Colonial markets. A low tariff is generally sufficient for most manufactured articles, but a new industry needs special protection during the first period of its organisation to enable it to start fairly. Ten per cent. duty on carbons when we are once well established would be better than nothing. Our foreign competitors would not go on at what is practically a loss were it not for the hope that sooner or later we shall have to shut up. But the moment we have a duty, however small, they will know that if this duty does not prove sufficient it will be raised, and they would certainly fight with less determination. Therefore any protection would be some support. I do not think 10 per cent. would be enough to encourage the starting of new works. Where a factory exists such a duty would be sufficient perhaps to justify enlargement, but in the case of carbons it would not be enough. Five per cent. in engineering would be more advantageous to me than 20 per cent. in carbons.

462 **Colonial Trade**

Canadian Preference

The Colonies have to get their carbons from Germany. Formerly they bought them through the English market, but now they frequently buy from the Continent direct. It would not be worth our consideration or that of any people in the business to go in for setting up factories in Australia and New Zealand as the business in any single Colony is not large enough. We are doing business with Canada and have had some very nice orders through travellers we sent across, in fact we have been so far encouraged that we intend to open a regular branch there as we have done in South Africa.

[**For Supplementary Evidence by Mr. Hirst, see Section V. (paragraph 1198 et seq.)**]

WITNESS No. 247

MR. WILLIAM L. MADGEN

(Brush Electrical Engineering Co., Ltd., Victoria Works, Belvedere Road, London, S.E.).

463 My evidence is personal and is not given on behalf of the Board of the Company, one or two of my colleagues not being quite in accord with me.

State of Trade

We employ about 2,000 hands. The Company is primarily concerned with the manufacture of electrical machinery, but it has established auxiliary departments for stationary and locomotive steam engines and railway and tramway rolling-stock. By establishing these subsidiary departments we can turn out a complete electrical tramcar or supply an electrical tramway or railway, laid down and equipped complete.

I wish to draw attention to certain aspects of the electrical manufacturing industry in this country of which political controversialists, the press and the general public appear to be ignorant. The points which I should like to make prominent are, firstly, the very serious effect of past and mistaken legislation in retarding the establishment and development of electrical manufactures in England; and secondly, the extraordinary proportion of the electrical machinery and apparatus in this country which has been manufactured abroad, but which bears the names of companies registered in England and is therefore necessarily supposed to be the product of British labour.

Legislative Restrictions

464 It is now admitted that early electrical legislation in this country was misguided. Parliament itself admitted as much when in 1888 it repealed the purchase clauses of the Electric Lighting Act of 1882, which by its harsh restrictions upon private enterprise had made electric supply business commercially impossible in the intervening period. The Tramway Act of 1870, which of course did not contemplate electric traction, was crudely applied to the new conditions and operated in the same way to discourage the conversion of horse tramways. The demand for electrical machinery in these early years was therefore restricted, so that British firms had small encouragement to establish works for its manufacture. When some years later the demand did arise, it was impossible for the experience and the trade to be suddenly created, and consequently foreign makers easily secured a firm footing in the British market and in the unprotected markets abroad. Great factories had been established in the United States, Germany and elsewhere before the British firms began to overcome the preliminary legislative difficulties. The consequence is that to this day the British manufacturer is engaged in an uphill struggle with the competition of these older and more powerful foreign firms, which, when it suits the exigencies of the moment, can dump their goods into England at prices unapproachable by British firms. A British manufacturer rarely tenders for any important contract without expecting to find that American and German companies have offered a lower price, apparently based on the cost of labour and material with a contribution towards reducing the incidence of their administration and general charges upon the cost of production for their protected home market. It was the opinion of such an eminent authority as the late Sir Frederick Bramwell that this unfortunate error of the Legislature, which so effectually discouraged electrical manufacture during that vitally important initiatory period, had for ever lost to England any hope of establishing effective competition with foreign countries. That this blunder of Parliament was a main cause

Temporary Protection Necessary

of England's backwardness in the manufacture of electrical machinery is further evidenced by the flourishing 465 condition of British makers of electric cables, who are certainly second to no American or Continental rivals. In their case the business was founded for the purpose of submarine telegraphy in the first place, and the manufacturers had the good fortune not to cross the path of a Legislature over zealous for the cause of public ownership of undeveloped industries. I claim on behalf of the British electrical manufacturer that Parliament owes a debt to the trade, and that it should make reparation for the injustice of which it was guilty in the critical decade when rival commercial nations were eagerly catering for the immediate and future electrical requirements of the world. Parliament should now provide that the British electrical manufacturer should have at least a few years' breathing space during which he may make up for the loss of those invaluable early years. Ever since, foreign competition has been hitting him while he is down, and unless he is granted an opportunity of gaining a foothold by the temporary restriction of free importation, it is difficult to foresee much improvement in the present position. It is useful to recall that the political economists upon whose theories the Free Trade policy was based, acknowledged the expediency in certain cases, as for example in newly developed Colonies, of temporary Protection, recognising that otherwise the establishment of manufactures was scarcely possible. Great Britain is practically in this position in regard to the electrical industry, and the past action of the Government, which prevented it from starting level with foreign competition, entitles it now to some consideration.

Foreign Firms under British Names

The other peculiar feature of the electrical manufacturing trades which is calculated to mislead the public as to the comparative strength of Great Britain in this department of industry, is the extent to which 466 business is carried on from branch offices of foreign firms, which are given titles apparently describing them as British undertakings. American and German manufacturers have opened branch offices under titles which appear to rank them amongst home industries. In its report for the last complete year of working one of these undertakings disclosed that goods to the value of £1,200,000 had been imported from its foreign works and sold in Great Britain during the twelve months. The leading German firm trading under an English title advertises that amongst its customers are numbered over 50 British municipalities.

Disadvantages of British Manufacturers

Not only in electrical machinery itself but in other requirements of electric traction and supply undertakings the home trade has necessarily been labouring under serious difficulties. When, for example, electric tramways began to be constructed on a large scale in this country, some years after they had become the common means of urban transport abroad, British firms were naturally at a great disadvantage having had no experience in manufacturing. The cars themselves, owing to their unwieldiness, could not so conveniently be imported, but the trucks, motors, controllers, trolley wire standards and other necessaries, were supplied from the Continent and America, and as their early experience was associated with foreign goods, British users have been slow to overcome their prejudice against home products in these lines. When the Company decided to form a department for the manufacture of trucks, the staff met with the greatest difficulty in persuading tramway managers to order these articles in preference to the American makes to which they had become accustomed and which had gained their confidence. The Brighton Corporation were to order trucks for their tramcars (that is, the underframe part), and they had specified a type of 467 American-made trucks. We make trucks of that type; we will call it the "Jones" type. We are not Jones & Co., but we make the "Jones" type of truck. The American price was somewhat higher than ours in this case. We went to the Town Council and represented that our trucks were British throughout and were of that type, but they said in effect, "No, we want the foreign make." So we got together a meeting of the workmen in our truck department and asked them to elect their own chairman and to consider the facts. They drew up a letter (a very good letter it was) which they sent to the Town Clerk of Brighton, remonstrating against the order going abroad. But the order did go abroad. That was the first case that I know of where an employer got his workmen together in a common cause of this kind, and they certainly came to the scratch very well. It is of course in ignorance of such facts that the daily newspapers pose as mentors of the British manufacturer when the news is published of important contracts going abroad. It would be better for the press to recognise with a good grace that under the present free import conditions the British manufacturer cannot possibly compete successfully on every occasion with foreign firms whose home market is preserved. The normal posture of the British manufacturer is one of desperate defence of his home trade; that of the foreign manufacturer, free from any anxiety so far as his own territory is concerned, is one of vigorous attack upon the British and other neutral markets. The foreign manufacturer has nothing to lose in such a contest. It will pay him to export goods on the well-known costs formula for a dumping market, but for the British manufacturer any policy of the kind would spell early ruin. It is not any want of intelligence, enterprise or industry that handicaps him; it is the crushing economic force behind his com- 468 petitors who, with a large home market absolutely secured to them, can direct all their energies to the invasion of Great Britain and the unprotected areas abroad. If there is any validity in the military analogy so frequently used by the press in referring to "commercial warfare," how can it be pretended that one of the combatants—whose territory is always open to the occupation of a multitude of enemies, and who has no opportunity whatever of counter attack—is lacking in skill and resourcefulness because he is occasionally defeated by the superior forces of his numerous opponents. A fierce critical note appeared in a London paper recently touching the order of £100,000 worth of steel cars from America for one of the tube railways. It was made out to be a pitiable instance of the sluggishness of the British manufacturers that there was no factory in the country capable of securing this contract. Considering that there had been no previous demand in England for such articles, it is difficult to understand what theory of business method could have justified any English firm in equipping a factory on the chance that some day or other such a contract would be obtainable. The manufacturer who has two markets open to him should always be able to overcome the manufacturer who has only one, and that one quite unprotected.

Comparative Advantages

I have frequent business relations with American and Continental merchants and manufacturers and their officials, and I have hitherto failed to perceive their alleged superiority so much advertised by the British press. On the contrary, I consider that the highest standard of commercial ability is to be

469 found in the British manufacturing centres, London, Glasgow, Belfast, Lancashire, Yorkshire, Tyneside and the Midlands. The British manufacturer has a grasp of his work, is strenuous in dealing with it and is usually a more robust type than his rivals. In general he is more of a sportsman than a money-grubber in his business, and submits in silence to much unmerited abuse from University professors on the one hand and the halfpenny press on the other. The mere fact that without the great economic advantages possessed by foreign protected manufactures British industry has maintained a position of such eminence is sufficient disproof of the absurd denunciations of the popular press. Foreign countries have only such advantages in respect of processes of manufacture as have accrued through greater experience and larger markets.

Rents and Rates The rents are probably about the same in this country as abroad; the salaries are higher in America and lower on the Continent. As compared with London our rates are lighter at Loughborough. If we went to a thoroughly rural place we would not be so hard hit by rates for a long time to come but we should then have that other difficulty, the housing for the workmen.

Colonial Preference Any reasonable preferential arrangement with the Colonies would be very beneficial indeed. We export to the Colonies and have recently secured our first order for Canada, owing to the preferential tariff. They discriminate in our favour to the extent of 10 per cent. and by reason of that 10 per cent. we were just able to secure the contract for the rolling-stock for an inter-urban line. 470

Duties If we had a moderate duty, capital would be attracted into the electrical business. It should be a very great British industry. Our firm alone employs some 2,000 men and that means a living for some 5,000 people. With a reasonable protection we could easily double that. In fairness to ourselves and to the rest of the community a duty of somewhere between 5 per cent. and 10 per cent. would be reasonable. It has been a terribly uphill task, and many other firms have gone down by the way. The failures have been numerous but not for the want of hard endeavour. The duties would not raise prices appreciably. Internal competition would be against that. I have often heard that the result of protected trades is combinations, but these combinations never seem to last. The duties would unmask those houses that adopt British names. There is a certain sentiment, which is not always shared by corporate bodies, I am sorry to say, that actuates our fellow countrymen towards home-made stuff, and it must be in order to get round that that these firms pose under British names.

[For Supplementary Evidence by Mr. Madgen, see Section V. (paragraph 1198 et seq.)]

471 WITNESS No. 248

Our works are devoted to the manufacture of electrical apparatus, and general engineering. Besides this the Company carries on both at home and abroad a large contracting business in the construction and equipment of electric railways and tramways and installations for lighting and the transmission of power. We have knowledge of the conditions of trading abroad, principally in our own Colonies, Japan and South America. In every case we are subject to keen competition, especially from Germany and America.

State of Trade The volume of business done in electrical engineering has materially increased. In recent years there has been a falling off in regard to our general engineering. We were rather behindhand in electric traction engineering until about 5 years ago, but things have materially altered since then. Our external trade is a steadily growing one and if properly fostered should in the course of a few years equal our internal trade. There are still considerable possibilities of expansion in the home trade. Much remains to be done in power and lighting work, and undoubtedly the next few years will witness great development in electric traction on railways which are now operated by steam.

472 **Prices** There have been large demands for electric machinery for lighting, tramways and power purposes, but the prices obtained have been so depreciated as to hardly leave any working profit. The lessening of prices of dynamo-electric machinery, to take a case in point, began to manifest itself in an acute form some 4 or 5 years ago. About this period Continental and to some extent American manufacturers began to take an active part in municipal and private tendering, quoting prices which were from 20 to 25 per cent. below English tenders. In consequence municipalities and private users adopted German machinery to a large extent, and in order to secure work English manufacturers have been compelled to meet these prices. To give an instance, the market price of a 500 kilowatt machine some 3 years ago was about £1,300, the present market price is slightly less than £900; this in effect means a reduction of 30 per cent. A large quantity of these machines are purchased from foreign manufacturers. This does not necessarily mean that the people who have purchased them will be compelled to do so in future, but as a matter of fact engineers prefer, if they start with a certain class of machinery, to continue it, simply for the matter of spare parts and uniformity of design; this handicaps our trade very much. In the first instance it is price that causes the adoption of foreign machines. The recent tender for electrical machinery for the London County Council demonstrated the wide difference in the prices of English and foreign manufacture, the lowest foreign offers ranging from 10 per cent. to 16 per cent. below those of the English firms. In the case of a comparatively recent offer to Cardiff the English prices for machinery were about 17 per cent. higher

473 than the Continental. The following list made up from actual tenders, all publicly advertised, gives a correct idea of the difference between English and Continental prices:—Manchester Corporation (switchboards), German offer 10 per cent. lower than English; West Ham (machinery), German offers 20 per cent. lower than English; Bradford (car equipment), foreign offer accepted at 12 per cent. lower than English; St. Pancras (machinery), Continental offers (accepted) at 17 per cent. lower than English; London County Council, lowest German offer was 20 per cent. below the English price for a very large amount of machinery. Low prices are not confined to municipal tenders, as numerous private plants were purchased abroad at exceedingly low prices. A colliery in Wales placed an order for 750 K.W. machines at 25 per cent. below the average English prices. I would not call this competition, it is purely dumping. I am quite prepared to say that if the German or the American manufacturer will give us the same right of entry into his country we will compete with him, and we can compete with him successfully.

The foregoing figures clearly indicate that to meet foreign competition the English manufacturer has been compelled to reduce prices by about 15 per cent. There is no question of superiority of manufacture, for English engineers on the grounds of quality and convenience prefer home-made machinery. In some cases they have gone so far as to entirely eliminate foreign offers, and on occasions they have recommended English machinery at from 5 to 10 per cent. increase over foreign offers. That has been the case notably in London lately.

Profits

474 The total net profits in the electric business have been very materially diminished in relation to turnover, though probably no particular branch of the machinery trade has been affected more than any other. At the same time the trade in each branch has materially increased in volume. It should be clearly understood that the present price of electric machinery does not leave a fair margin of profit. I reckon the capital invested in the manufacture of electric machinery at something like £9,500,000, and I do not think that more than 2 per cent. is paid upon the whole. I do not think any manufacturing business is doing well unless it makes a net profit of 10 per cent.

Foreign Competition

The fluctuations of business in the Colonies and abroad have been similar to those which obtained at home. The demand for plant and machinery has been exceedingly variable, and while in some cases it has been impossible for home manufacturers to make deliveries, the chief impediment to successful business has been low prices. In every case within our experience the competition in our Colonies, both with American and German manufacturers, has been if anything more acute than in the home markets and the prices generally are slightly lower. There is hardly any doubt that American and Continental manufacturers in the Colonial and foreign markets are in a better position to meet deliveries on account of their greater manufacturing facilities. Quite apart however from these superior facilities affecting cost of production, the prices quoted by foreign manufacturers in the Colonial markets are distinctly lower than those quoted in their own. The manufacturing facilities consist of the larger factories they are able to maintain through being protected against competition in their own markets. They have all their own home trade. The Colonial market is
475 a very important market to retain. We can do nothing anywhere except in the Colonies, Japan and South America. Foreigners are now forming companies to trade under the name of English concerns, to do away with the prejudice against them. There are several concerns in London at the present time calling themselves the English So-and-so and the British So-and-so, which are entirely foreign concerns.

It can be unhesitatingly stated that the low prices which at present obtain in electrical engineering are due to the dumping of Continental machinery. During the last 18 months foreign competition has been less effective, chiefly because English firms were compelled to meet the prices set by the Continental manufacturers, and consequently foreign machinery under ordinary conditions of tendering cannot now be disposed of in this country to the same extent as before.

Employment and Labour

Our experience regarding continuity of employment has been tolerably satisfactory from the workers' point of view. This has mainly arisen from the great development in electric traction which some 4 years ago created a great demand for special machinery. Those manufacturers who laid themselves out for this class of work were thus enabled to keep their shops fully employed. The municipalities in this country insert a labour clause, which is very unfair because it is not enforced against foreign firms. It is a direct bonus to the foreigner. There was a case in Glasgow the other day, where a large German company got a contract from the Glasgow Corporation, who insisted on having the British wages clause and the time clause entered
in the contract. The German firm accepted it but how they are going to carry it out I do not know. 476

Cost of Production

The insecurity of the home market has prevented to a great extent the legitimate development of English electrical works, and the immediate result of such stagnation is to affect the cost of production. The cost of an article and the price at which it can be sold depend upon the volume of output, inasmuch as the expenses of administrating non-productive capital and the disposition of output are practically constant over a wide range of production. For example, an electrical manufacturer fixing his cost charges on an estimated output of £100,000 a year will in the event of increasing his production to £200,000 a year be able to sell this £200,000 of production at a very considerable decrease in price and still stand in as favourable a position for profit as when selling half the output at the larger price. The bearing of this upon the position of the British manufacturer with his 45 million market, which he has to share with his American and German competitors who completely reserve their own large markets, is obvious.

Wages

On the relative cost of production in Great Britain and foreign countries it is interesting to compare the rates of wages which obtain in parts of Germany and in this country in the manufacture of electric machinery. The following list gives the rates of wages in the two countries for similar work. These figures were collected about 2 years ago; since then the Berlin rate of wages has been slightly increased, 477 but as there has been an increase in the home rates the difference between the two is practically the same.

Class of work.	English. d.	Berlin. d.	Difference per cent.
Leading dynamo erectors	9½ to 12	6½ to 8	46 to 50
Fitters	8	6 ,, 7	14⅓ ,, 33⅓
Switch makers	8	4½ ,, 5	60 ,, 77⅔
Armature winders	8	6 ,, 7	14⅓ ,, 33⅓
Core makers	6¾	3½ ,, 5	35 ,, 93
Pattern makers	9	4½ ,, 5	80 ,, 100
Crane attendants	5½	4½ ,, 5	10
Small commutator makers	4¾ to 12	5½ ,, 6	68½
Large commutator makers	4¾ ,, 12	6 ,, 7½	80
Small dynamo and motor fitters	9	6½ ,, 8	12½ to 38½

The weekly hours of labour in England are 15 per cent. shorter than at Berlin.

Workmanship

The production per man in this country, so far as our experience goes, compares favourably with what obtains in other countries. It is considerably higher per man than on the Continent and about equal to that
478 of the best shops in the United States. These results are obtained notwithstanding that the English shop hours are appreciably shorter. The quality of the work in English shops is quite as high as on the Continent or in the United States and, apart from any question of design, it is an accepted fact that English dynamo-electric machinery is more workmanlike and better finished than that imported. In some cases foreign machinery has been specifically modified to meet English requirements which are presumably more stringent than obtains abroad. In certain electric apparatus the manufacturers in this country stand exceedingly high, and though there has been a material lowering of prices, it has not affected the quality in any degree. The superiority in some respects of English machines leads engineers at home to give them a slight preference, but though engineers as a rule may be relied on to exert their influence in this direction their action is not always sustained by clients for whom they act.

Foreign Methods

I have had a considerable experience of German manufactories. It is a settled policy on their part that when they establish a factory of any kind a certain amount of work, 20 to 30 per cent. of the output is expected from England and her Colonies. It does not matter whether the home trade is very busy or not, they always devote a certain portion of that factory to export business. They never allow themselves to lose the grip of it. They reckon to export at a lower price and as a matter of fact it costs them less, because their standing charges are the same whether they are running a factory with 3,000 or 4,000 hands. They get a larger price for their own production at home, and they average up the whole amount, so that it still leaves a profit even if it is sold considerably below the home prices. When our competition is stamped
479 out, they raise their prices ; it has been so in the steel trade in several cases.

Raw Materials

No special advantages are possessed by competing countries in regard to materials, either in respect of quality or price.

Railway Rates

We cannot say that our trade suffers materially from preferential railway rates adopted in foreign countries. Most of the manufactured articles we supply are of an expensive class and usually sold at so high a price per ton that existing differences of railway rates would not materially affect them. If the average price of our machinery is taken at about £70 per ton, 5s. a ton does not make any real difference to the cost.

Education

The advantages gained by the system of technical education in America and Germany are overestimated. It is hardly correct to assume that education is wholly responsible for the successes of engineering firms in these countries when compared with our own. We have had considerable experience of engineers, both German and American, of the highest qualifications and whilst in purely technical work, more particularly of a highly mathematical character, the education and perhaps the natural bent of Continental engineers gives them some advantage, we find that in the actual work of supervising the manufacture, installation and operation of our output, the young engineers we obtain from this country possess a greater practical grasp of affairs and capacity for undertaking responsibility. The general practice in this country of supplementing a good general education by a thorough shop training is preferable, except in special cases, to the
480 American and German system of superadding to a general education a special college training extending over 3 or 4 years, with more or less perfunctory shop training carried on at spare times. I would not say that the American system of keeping a boy at college until he is 18 or 19 and then going through the shops is inferior to our system of apprenticing a boy at 15. If they would keep the lad at school up to 17 and then put him through the shop and give him a thoroughly good training, it would be better, but as a rule they train them in the universities, and they get perhaps 3 or 4 months a year in shops for 2 or 3 years, and then they are sent out as special engineers, with special knowledge. They have no practical knowledge and are useless for superintending large works or taking charge of outside contracts. In regard to the designers and the men who do all the calculations for the designing of the machines, &c., both the Americans and the Germans, I think, are ahead of us, but as for the average young American engineer we find we can do without him quite well. A good deal could be done and a great deal is being done all over the country in the direction of technical education. Every labour centre of any magnitude is now fairly equipped with technical schools attached to South Kensington or some other great institution, for the British workman and everyone has the opportunity of attending. Every man who is going to undertake work such as electrical engineering would be better for technical education ; he would be easier to deal with and better able to grasp any detail. So I am in favour of giving all the workpeople a certain amount of technical education. My experience of American and German workmen is that they are not

481 better educated than our men. Lads are about at their best if they leave school at 16 or 17. It is better that they should not go into the works earlier. If a boy has had a good general education until he is say 17 and then goes through the shops he turns out a better man than the lad who leaves school at 14 and learns things merely by rule of thumb. That applies to all kinds of work.

Encouragement to Workmen

A good many American firms offer prizes to the workmen for any improvements they may suggest in designs and methods. They always welcome anything in the shape of original devices for labour saving &c., &c. They do a great deal more than we do in this respect. They also allow any man who has any idea that they think likely to be useful to them to work it out in their time, and in the event of it being found a success they will then buy it of him or give him some share in the profit, and generally they try to stimulate initiative. As a consequence they get a great many suggestions from their workmen. There is no reason why we do not do it in our shops except that we have been rather too busy to initiate all those things, but we have just lately got a branch of the technical school in our town fitted up for electrical engineering for the benefit of our men. We have presented them with all the electrical appliances.

Trusts

Amalgamation of electrical manufacturing concerns has become a very notable feature both in America and on the Continent. The manufacturing of electrical machinery in America is in the hands of two large combinations which were formed by grouping together some of the largest manufacturers. The principal cause which led to these amalgamations was the extremely keen, and in some cases reckless competition which prevailed for some time. The two present combinations have an arrangement in regard to prices. The effect of these amalgamations has undoubtedly steadied prices, while not unduly inflating them. 482 Similar amalgamations have been recently carried out on the Continent. Amalgamations which have been made in various industries in this country have not been very successful, but we think this has been mainly caused through over-capitalisation. The causes which justify amalgamations have certainly existed in this country, and there is no doubt that under certain conditions amalgamations or arrangements among electrical manufacturers, if carried out on a sound financial basis, would have materially improved the general condition of the industry. Such a system would have regulated output, steadied prices, cheapened cost of production and given greater security to invested capital. The adoption of a tariff might not accentuate the cause, but it is only under some such fiscal arrangement that a combination of interests is possible.

Standardisation

Though systems of standardisation are highly desirable, it cannot be said that the electrical industry has suffered materially in this respect.

Tariffs

The obstructive effects of tariffs is shown clearly enough by the fact that we have since the beginning of our electric business been unable to sell a shilling's worth of machinery either to the United States or to Germany. The operation of foreign tariffs undoubtedly tends to preserve the efficiency of production in the protected countries, since by securing the home markets it prevents violent fluctuations in output and renders more certain the continual employment of capital, machinery and labour, and organisation on an efficient basis. 483 The Free Trade policy has been an important auxiliary to the success of foreign tariff policies since as there were no fears of reprisals on our part imperilling the trade with this country it has permitted foreign states to make such tariff arrangements as would most effectively protect their own industries. With anything like equal tariffs we could readily compete, but we are shut out of these two markets particularly, and handicapped in our Colonies by their dumping their goods.

Duties

As we do not purchase any manufactured or partly manufactured materials from abroad our trade would not be materially influenced by import duties, only in the event of duties being imposed on raw materials our products would be affected. A duty will have the effect rather of decreasing the price than increasing it. The competition would be quite as keen in all markets and the duty would enable us to maintain and keep our own markets, which we are fast losing. If we had a 10 per cent. duty on imports we should be quite content.

Preference

Our experience of Colonial preference has been eminently satisfactory so far as it has gone. If we had a preference in all our Colonies we should be able to keep a very large proportion of the trade in this country. We suffer from German competition in Australia and in the Cape too. The 2½ per cent. at the Cape is not quite sufficient. The Colonial demand for electric plant is extending but we shall want a much bigger preference than the 2½ per cent. to do any good.

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WITNESS No. 249

MR. T. O. CALLENDER

(Callender's Cable and Construction Company, Ltd., Hamilton House, London, and Erith Kent; Anchor Cable Company, Ltd., Leigh, Lancs.).

Cables

Our business is making cables for the distribution of electricity for power and lighting, including the small cables required for house work. We do not touch submarine cable work. We do some post office work for telephoning.

State of Trade

Our business has increased very rapidly. Ten years ago it was comparatively small, amounting to £100,000 or £150,000 a year turnover, and now the turnover of my company alone is about £1,000,000, though in the last two years the trade has decreased considerably owing to competition. Our works were started over 20 years ago with the beginning of the great electrical development and have grown with it. At present

485 we have £750,000 in cash engaged in our business in London, and £75,000 in a business which belongs to us in
the Anchor Company in Lancashire. In this country we have only four large competitors in the cable trade.
We are members of an association which does not deal with prices, and within reason we help each other
where it does not interfere with our own business. We are very friendly though keen competitors. In our
trade there are not many small firms. A small firm cannot do electric cable work. To begin you must have
£500,000. In dealing with local authorities £200,000 or £300,000 may be owing to you. The trade in cables
in this country is about £3,000,000 a year. Trade is not so satisfactory at present. The volume of business
is less. The amount of profit is much reduced, and competition has greatly increased. In the future we
anticipate keener competition than at present. We have to bear the brunt of home competition, but German
firms especially are arranging to fight for our trade by the formation of nominally English companies here.
Three years ago practically none of the home trade in the manufactured articles was done by foreigners.
This year they did at least £200,000 worth of our trade, chiefly in smaller wires. There has been a movement
amongst English cable manufacturers in view of the threatened competition from Germany. A number of
contracts have been taken by Germans at low prices to show us what they mean to do. Our answer is that if
this competition becomes offensive and a nuisance we will put up works in Germany and compete with
them in their own country. In regard to electric lighting and electric supply there are two German houses in
London trading under English names. One is a branch of one of the largest engineering companies in existence,
having headquarters in Berlin. To get over the prejudice against German machinery they have started
486 this business in London. Another is a cable company trading as an English company, although entirely
owned and controlled in Germany. In addition there is a very large concern with works here which is entirely
controlled from America. These companies sell a considerable amount of electric material. We have hitherto
been very successful and it is only in the last two years that German competition has become really worth
fighting against. Germans do not produce as high a quality as our cables, and it is well recognised among
all consumers that British-made cables are superior to foreign. Our cables are as suitable for high or low
tension work as those made by Germans or French, both as regards insulation and durability. Cables are
made especially for the purpose for which they are designed. Some of the German work in London has been
singularly unfortunate. American opposition has not yet materialised. Some Americans purchased land to
erect a factory, but dropped it, but from Germany we experience considerable and increasing competition.
German cables, &c., are manufactured in Berlin, Cologne, and Duisburg, and shipped over here. We lose the
labour. A considerable contract has recently been placed for cables in connection with the electrification of
the District Railway. The English tenders for the first contract varied from £115,000 to £105,000, and the
Germans offered to take it at £90,000. The British competing firms met to consider if we would jointly take
it. It was offered to us after strong speeches had been made about using English materials, and we were
told we could take it at the German price. We found it represented an actual loss of £8,000 to £10,000, but
in the end it was decided to take it to keep it out of German hands. An extension order came along after-
wards and again the Germans tendered. We were also asked but concluded it was not worth while continuing
to drop so much money. We misjudged the company ; we thought they would pay English prices in view of
487 such strong declarations to their shareholders as to using English goods, but they gave the larger part of the
work to the Germans who will probably carry it out at a heavy loss.

Exports Our trade on the Continent, which some years ago promised to be a considerable one, is seriously interfered with. In the early days we did business in Germany, but duties were raised against us, and our German trade has absolutely disappeared. The German duty is £6 to £8 a ton, equal to 12–15 per cent. ad valorem. Cables average £40 and £50 in value. If we were able to compete with this duty it would be increased, but it is quite protective enough. The same applies to France, where some years ago we had extensive contracts, and now that market is closed against us. In Italy we have carried out some work but now not so much is being done. Italy has recently adopted protective tariffs to safeguard its own manufactures. In the Scandinavian countries there is a considerable business done, but owing to the protection given in their own country the Germans have been able to dump materials there to a considerable extent, although the duties apply equally to them as to us. Austria is also entirely protective, having factories of its own. Russia has also walled itself round with a strong protective duty.

Colonial Trade We have sent a considerable amount to the Cape and expect some large orders within the next few
months for Johannesburg. The mining property has not ordered largely since the war. Power supply there
has been largely in the hands of a Berlin firm. The man who gets the Johannesburg contract which will
488 shortly be placed will get it at too low a price to pay him. A keen endeavour will be made to keep that trade
out of the foreigners' hands, as a matter of policy as well as of patriotism. The electric trade in Canada has been
entirely in the hands of the United States. All the plant put down there has been American and we have done
little trade. Electric work in a new country has to be fostered and financed, and American companies have
financed the Canadian companies and got them into their grip. The absence of trade in electric material
in Canada is due less to the tariff than to the fact that the Americans had got hold of it financially before
ourselves.

Profits The total net profits have been very considerably reduced in relation to turnover. A few years ago we counted on a profit of 9 to 10 per cent. on the turnover of our business without counting interest on money, depreciation or permanent charges. That was very small, but last year profits decreased to about 5½ per cent., and we have done fairly well. All the cable companies pay considerable dividends. My company has paid 15 per cent. for some years past. One year we paid 20 per cent., but last year we had to reduce it to 12½ per cent., still a respectable dividend, but arrived at largely by our having considerable reserve funds, consisting of undivided profits made in the good years, which now equal the amount of our paid-up ordinary share capital. We recognised that competition was coming and provided against it.

Elements of Cost In making a cable, copper represents over 70 per cent. of the cost, paper 3–4 per cent., lead 10–12 per cent., labour 8 per cent., leaving 3 per cent. to 5 per cent. for profit.

Labour

489 Our men are very well employed, only the number has been considerably reduced. We employ hundreds of skilled men, founders, engineers, fitters, &c., and many in the ordinary labour class but who are specially skilled in work such as ours. We and our competitors have trained up our own staffs and our extra men are more or less labourers, but probably the best class of labourers in this country—a large number are old sailors from the Navy. At Erith the average number all the year round is 1,417. In the working week, deducting holidays, &c., the average is 1,500 to 1,600 and sometimes in summer 1,700 to 1,800. On our outside contracts the average number all the year round is 1,650 or, for working weeks only, 1,700 to 1,800, with occasional spells of several weeks of heavy work requiring 2,500 men. For our work in India and the Straits the average is a further 1,500 men. Altogether approximately about 5,000 men are employed in our concern. We have taken work in some cases at almost cost to prevent the break-up of the continuity of employment. Our business is so much a special one that we do not like to get rid of our men as we should have considerable difficulty in getting them back again. We have had to send away about 200 labourers recently. We have kept our best men and put them on to a lower grade. Those who have gone are little more than ordinary labourers. In our engineering factory where working fluctuates, men are frequently discharged, and we can get them again from the North where they can meanwhile get other jobs.

Wages

490 Wages have decreased a little, but our men are not badly off. When business was exceedingly good we paid an extra rate to get the best men available, and this premium rate has not ceased. Otherwise the men are getting as good wages as formerly. The unskilled men's minimum wages are 26s. to 35s. They are classed as ordinary labourers by the trade union, but they are really very skilled men. Some of them get 9d. an hour. We have probably outside on the contracts and at the works 150 thoroughly trained engineers. The following is a statement of our wages for four years past:—

Wages.	In factory.	Contracts outside factory.	Foreign contracts.
1900	£95,000	£85,000	about £10,000
1901	110,000	156,000	,, 10,000
1902	120,000	145,000	,, 10,000
1903	110,000	128,000	,, 10,000

Roughly speaking, our wages average £250,000 a year, not counting the staff wages or the engineers.

Raw Materials

491 Copper wire is our most important material. We buy it ready drawn, chiefly from Staffordshire and Widnes. We get a little from Manchester, Birmingham and occasionally France. We buy little German wire, perhaps 100 tons a year, less than 3 per cent. of the total. We use much steel wire, nearly all English although there is very keen German competition. The largest amount of copper for electric purposes comes from Australia, Chile and the United States. No considerable parcels of copper come from Sweden. Rio Tinto copper is largely used. Most of the copper used for electric purposes is refined electrically, so that we get pure copper so far as possible. The by-products—gold and silver—are of considerable value. Chilian and American ores hold considerable quantities of gold and silver. Most of our lead comes from abroad but is English refined. We use a little Spanish refined, but nothing in proportion to English. We use a very large amount of steel tape. It is made in very long lengths and of suitable thickness for armouring or winding on cables after they are lead covered. We buy it mostly from Middlesbrough. I have used some German and it works easier than English, but it is nothing like so good when the cable is finished. It does not possess the strength of English. Its price is slightly lower. We use paper and jute. Our paper is Yorkshire made and most of our competitors use the same. We have all tried to get stuff elsewhere and though you can get the very cheap paper used abroad in cable-making nearly all British firms use best English paper. Some very special paper made in France we use and find best for certain purposes but its use is not considerable. Our paper is mostly made out of old ropes. You cannot always get it. We also make a large quantity of cables insulated with vulcanised bitumen. The raw bitumen comes from the well-known pitch lake on Crown property in Trinidad. We use much rubber and a number of other small materials at our Anchor Works.

Foreign Advantages

492 The rate of wages is much less in Germany than with us, and one of the points that we grumble about is that local authorities impose on us most stringent regulations as to carrying out our work under Trade Union conditions of price, time, hours of labour, &c., but when orders are placed abroad no such conditions are imposed. Foreign countries have no advantage in regard to quality of their manufactures or material, and the only cheapness is that the labour is less, and they are protected. Foreign commercial travelling is not superior to ours. Comparing the burden of administration charges, such as rents, commissions, salaries, &c., as far as Germany is concerned we have no information, but in the United States on the out-turn the percentage is practically the same as here. If anything we are a little to the good.

Transport Rates

When we carry out work on the Continent we have greater facilities accorded to us than we can get here. Our railways charge exorbitant rates, but fortunately we have steamer communication from London to ports round the coast and though that does not affect the railways as much as it ought, it makes them more reasonable. For instance, to Burnley in the centre of Lancashire the railway charges us 43s. 9d. a ton, but we can ship to Goole and by rail from Goole for 21s. 6d. including transhipment. To Liverpool the railway rate is 31s. 6d. and the steamer rate 16s. 6d. We pay 22s. 3d. to Reading by railway. It is only a few miles, and it is practically the same rate as to Birmingham. The internal railway rates are not particularly detrimental to us unless foreigners have cheaper through rates. We are competing for a large contract in Holland and we can send by a German company at 15s. a ton from London to Utrecht, including

493 internal carriage. If they are sending from Utrecht here they would probably get less. The rate from Cologne to London for cables &c. by steamer is about 10s. a ton.

Technical Education

You can have technical men with very high education abroad for much less than here. They are better informed in their particular branch but not such practical men. We recently carried out some large works in Copenhagen, a small city compared to Manchester or Liverpool, but the technical staff there is many times larger than we should think necessary. They are what we call highly trained men working at starvation wages and they do not work very hard. The educated man is the better workman and I advocate higher training for our workpeople. The higher the education the easier the man can work. A man with no education is little good to us except to dig trenches. Our best men are old navy men. They have a very large fund of practical information and common sense. They are most excellent handy men.

Accounting

The systems of checking and accounting here are much the same as those in use in foreign countries. In many leading works in Germany are men who have been educated in England, so that modern German electric works are carried out on the most advanced English and American methods.

Local Rates

The rating of machinery has gone up to a shocking extent. Four years ago we paid about £400 a year and we are paying now £2,248. The rate in the pound has increased and we are assessed higher also. On this question of the assessment of tools and machinery a great agitation is going on.

494

Trusts

The want of appreciation of the value of amalgamation amongst English manufacturers is because some of our people do not understand it. Men on the practical side handling the business every day are convinced that amalgamations ought to take place. Shareholders and others who do not see the daily work do not appreciate this as we do. Some companies here are family affairs with only a few shareholders. They are more difficult to deal with than less private companies. Amalgamation saves immense expense in getting business, one efficient staff looking after all the business there is to be done instead of a number of more or less efficient staffs fighting each other. But it does not reduce other charges very much. There was a proposal for two large firms and my own to amalgamate. The managers of the other works and myself went carefully into the possible saving in factory charges, &c., and we came to the conclusion that it would not be much. On the commercial side there was an advantage, but there is a strong objection in this country to the trade being in the hands of a few. The tariff, as far as our business is concerned, has not made much difference in the formation of foreign trusts, &c. The Germans were forced into amalgamation by the immense amount of over-production in good years. The tariff made it much easier to carry it out. They were at the height of their prosperity about 1900 when they built immense works. Then came the inevitable reaction, and their amalgamations enabled them to reduce expenses. The combinations in Germany have taken place between two or three big firms. The Germans strongly advised us to form a ring similar to their own. and in that case they would come in with us and get a share of our business.

495 **Standardisation**

One difficulty thrown in the way of English trade has been non-standardisation. Until quite recently every engineer has had his own ideas and insisted upon having them carried out. We had some thousands of different patterns of one class of cable, varying sometimes by thousandths of an inch. They were unnecessary and useless but had to be complied with or the cable was rejected. The outcome of this difficulty was the Cable Makers' Association, one of whose objects was to standardise conditions, dimensions and types. The Cable Makers' Association has been very successful because we got a fair working series of standards together, and though one or two engineers refuse to accept them and deliberately specify something else, most of them have adopted them and specifications now increasingly demand cables to be made in accordance with the cable makers' standards. I was one of two representatives of the cable industry on the Standards Commission, and we succeeded in getting our complete table as standards recommended for acceptance by the Commission. Having the standards in force assists us to tender at low rates, as it reduces the cost and will enable us to keep stock. The Germans have standards. They were only a little in front of us. We did what we could to keep our standards within reasonable touch of those in Germany but Germans are metric and English are inch. They are on very similar lines, except that we consider German standards too small and too closely cut.

Duties

If we had a reasonable duty and power to retaliate in this country we should probably come to some arrangement with the Germans. At present we are precluded from going into their country, and they have
496 the free run of ours. In Germany the prices of similar goods run from 10 to 20 per cent. above ours. The duty being from 12½ per cent. to 15 per cent. that is what one would expect. In France we had a very good trade a few years ago and carried out some important contracts, but we are now entirely barred by the duty of £15 5s. a ton. The conditions of fair competition would be that there should be a reasonable tariff put on here, not necessarily equal to the foreign. The Americans have a 45 per cent. ad valorem duty.

Preference

Our South African trade has not had any practical benefit out of the 2½ per cent. preference. We want more. We should like 10 per cent. and in that case our prices would be little if any higher.

WITNESS No. 250 497

MR. FRANCIS ELGAR, F.R.S., LL.D.

(Fairfield Shipbuilding and Engineering Company, Limited, Glasgow; Vice-President of the Institute of Naval Architects).

State of Trade

My evidence is upon shipbuilding and marine engineering. I consider that for some time the shipbuilding trade here has been in a satisfactory state. The volume of business done by the engineering and machinery trade has been fairly steady, most of the works being busy till last year (1903).

Trade is dull now and many ships are laid up, and there has been a great falling off in orders owing to the state of the freight market. Some of the yards that build chiefly cargo boats are run down very low and many men are out of employment. This has caused a reduction of wages. The rate of earnings was steady from the engineering strike at the end of 1897 till last year. We then had to make a reduction of 5 per cent. all round, and this year we have made a further reduction of 5 per cent. on piece work. There was not much resistance. The trade unions objected of course, but ultimately gave way. They did not call out the men. There is generally plenty of work in the way of intermediate class vessels which carry 498 passengers and cargo as well, but that also has fallen off. Many shipbuilders are taking orders at present (June, 1904) at and under cost price for the purpose of keeping men in employment.

Profits

Profit in relation to turnover has not changed within the last few years. Profits have kept pretty steady and there is no particular change in the remunerative character of special branches.

Systems of Accounts

For all the practical purposes for which we require to keep cost accounts our system is the best. I know the French, German and American system and I prefer ours.

Shipbuilding in the United States

I have kept myself abreast of the affairs of the United States with regard to the Shipbuilding Subsidy Bill which appears to be within measurable distance, and I do not believe that in the event of its being put into operation it would enable America to dump ships on us. America would have to go a very long way before she would be able to dump ships here. The restrictions as to their coasting trade are the same as in our old Navigation Laws which required British ships to be British built, British owned and British manned, so that we are not only not able to trade on the American coast with our own ships, but we are not able to build here ships for that trade. Foreign built ships can be employed by Americans in their own foreign trade only by Act of Congress. They have admitted a certain number of British built ships and waived the tariff in their favour by special legislation. In the case of the American International Line an Act was passed under which those ships were allowed to be bought by American owners without payment of tariff on condition that an equal amount of tonnage was laid down in America. 499 Any American can employ a British built ship in foreign trade provided he pays the tariff, but in that particular case the tariff was waived. There are of course under the American flag steam yachts built in this country and other foreign built ships but the tariff is so high upon imported ships built for the foreign trade that scarcely any are built for America abroad and the duty on marine engines apart from ships is also very high. We have practically nothing to contend against in building ships for British owners or for many foreign owners though it is impossible to build in this country for the United States of America for the reasons given.

France

The bounties and tariffs in France make shipbuilding out of France prohibitive. In France and America they do not make every portion of the fabric of a ship nor every item of machinery. They sometimes import auxiliary machinery and fittings, but that does not affect us as shipbuilders, because they import direct from the makers of those machines, from whom we also buy them.

South America

We build for South America but there is no tariff there.

Germany

We sometimes build ships for Germany. There is no tax on ships in Germany, neither is there a tax on the raw materials out of which ships are built. This is to the interest of the Germans, because their shipping requirements are sometimes in excess of the means of meeting them at home. The only country I know that might be able to compete with us at present in shipbuilding is Germany. I have no doubt that ships are being built there as cheaply as in this country; cargo carriers and ordinary passenger 500 steamers certainly are, and probably also the best class of passenger steamers.

Japan

There has been a good deal of shipbuilding done here for Japan though there is a 5 per cent. tariff upon foreign built ships in Japan. There are very large shipbuilding yards at Nagasaki and elsewhere, at which they build their own steamers, and turn them out very well now. They have built many cruisers at the Naval Arsenals, but not a battleship yet. The large steamship company, the Nippon Yusen Kaisha, get tenders in this country and also in Japan; sometimes they give the order in Japan because the offer is cheaper with the small duty of 5 per cent. against us. Japan will undoubtedly become a large shipbuilding country so far as the whole of the East is concerned. They are at present importing all their plates from Europe, chiefly from this country. They have not been successful yet in starting steel works though they have spent a lot of money on it, but as they have iron ore, it is only a question of time. Their labour is very cheap as compared with ours. The wage of a good mechanic is about 1s. per day, and they are very good workers. The work they turn out in shipbuilding stands high as regards strength and finish as compared with foreign work. I have seen a great deal of it that would do credit to anybody.

British Admiralty

Our Admiralty authorities really specify the firms from whom we have to buy materials for British warships; they give us a list of makers and we may only go to a maker who is upon that list. If other

501 manufacturers wish to qualify and apply to be put upon the list, the Admiralty make an examination of their works and add their names if they consider them eligible, and they generally do if the firms have any status at all. The battleship industry is really a protected industry as far as the British Admiralty is concerned. Nevertheless we probably could not build a battleship appreciably cheaper if we were permitted to get our materials in any part of the world, excepting as regards such an item as shafting for which we cannot obtain real competition amongst the British makers. On the whole cost of the ship however that is comparatively small. This system applies to everything we buy for the Admiralty. We get all the material for building a British battleship from British firms. If foreign companies are established in this country and carry on their manufactures here we may get material from them as British companies.

Materials

The principal materials we use are iron, steel, brass, copper, tin, zinc and timber. We are also very large users of manufactured articles, auxiliary machinery and fittings of all kinds. Completed articles, such as anchors and cables, pumps, winches, windlasses, steering gear, refrigerating and electric light machinery and lamps, upholstery and other different fittings of a ship, we get from manufacturers in this country. All our timber comes from abroad.

Steel Plates

It has been said that steel plates can be had from America very much cheaper than from this country, and there may have been times when that could have been done. Whenever I made inquiries about it however it did not work out. There has been a good deal of talk about German ship-plates. We sent an 502 inquiry a few months ago for German steel, but it worked out at a somewhat higher figure when delivered at our works than we could buy it for in Glasgow. A well-known firm are said to have had a large quantity of American steel over at one time, but our inquiries have not shown that this would work out advantageously.

Boiler Tubes

We are not allowed to buy Belleville boiler tubes abroad for British warships. The solid drawn tube industry as it exists now in this country has been much helped by this protection ; if British shipbuilders had not been prevented by the Admiralty from going to Germany for these tubes, the industry might not have been so flourishing to-day. When the Admiralty first insisted on solid drawn tubes only three small English firms made them. We applied to be allowed to go to a well-known company in Germany, who could have supplied us with what we wanted to get over the temporary difficulty, but we were not permitted to do so. We had to stop our work and ships were delayed a considerable time because it was impossible to get the tubes in this country. Many questions were asked in the House of Commons about the cause of delay with all ships building by contract. The chief cause, apart from the engineering strike, was the impossibility of getting these tubes in time to enable the ships to be completed by their contract dates. It was merely a temporary difficulty because there had not been the demand, and the mere fact of the new weldless steel tube coming into vogue created a demand and the supply to meet it. At the particular time I refer to we could not obtain solid drawn boiler tubes in anything like sufficient quantities. If there had been an absolute necessity we should have been obliged to go abroad but though 503 there was a good deal of pressure we were not allowed to do so. The result was that the German Company's British Branch was developed, and now we deal with them as well as with other makers in this country. It is really a German concern, I believe, but they employ British labour in their works here. They had this industry fully established in Germany at the time and we had not, but now we can get weldless tubes in any number, because of the action the Admiralty took in insisting upon getting them manufactured in this country. There would have been no difficulty at first in getting some of the existing works adapted or in putting down new works for weldless tubes if the Admiralty would have guaranteed a regular supply of work for a few years, but they never do that. The makers have to take all risk of such demands continuing or falling off. These observations all refer to Belleville boiler tubes. We have now been making these boilers nearly 10 years.

Technical Education

The more scientific training our employees have the better ; it tends to improve the quality of the work. We do better work here in shipbuilding and marine engineering than anywhere. Our work includes a great deal of designing which involves difficult mathematical calculations. The work is of a very complicated character. It is not the pure product or application of exact science ; it requires a good deal of judgment and practical training and real workshop experience that the purely college trained man is deficient in and does not readily acquire after he has left college. We take our drawing office men from all classes, from the apprentices in our works, boys who start at 15 and serve an apprenticeship, and also 504 from colleges and public schools. Their training is mainly practical, for we consider the best training for any class of boys is practical training at the works, to begin, say at 15 or 16 years of age, combined with a course of evening classes till 18, and afterwards some time at a college or advanced technical school ; this is what we prefer, but is not quite what one finds in America. The lad should go to college when he is 18, not preferably to Oxford or Cambridge, but rather to the Scotch Universities or the more technical English colleges or schools as near as possible to the place in which he is learning his trade. In Glasgow University there has been a chair of Naval Architecture and Marine Engineering for 20 years and a great many well qualified men have graduated there. There are also other technical colleges in Scotland of older standing so that we do not find much difficulty in Scotland about scientific education. We get a very good class of trained men. In some manufactories in America they will only have college trained men. As to whether they are the best men depends a good deal on the kind of engineering work they do. I have seen young men from colleges in the shipyards of the States who are trained very highly, mathematically and theoretically, but who do not settle down readily to the routine of drawing office work. It is difficult to get a good proportion of them to devote themselves to steady hard work in the lower grades long enough to really qualify for higher and more responsible positions. University trained men are very useful to us when they are of the right sort for the work. Take the man who has had a good training and the man who has not, and put them through the same practical mill, the better trained man would certainly come out on top, but the practical training requires to come early in shipbuilding and marine engineering and not as a mere supplement to school or college education. It might improve matters generally and improve 505 the staff to have a more scientific course of technical education, but I doubt if it would make any real difference in the volume of our shipbuilding trade.

Trusts and Amalgamations The only amalgamation in our trade was the Shipbuilding Trust in America, and that was a failure. It did not exist for more than a few months, and it would probably never have been organised but for the tariffs and the help that was hoped for from them. This Trust appears to have been enormously over-capitalised. There has not been much done in the way of amalgamations in this country in the shipping trade. There are so many shipbuilders here that amalgamation would be impossible. Amalgamation is not practicable except in cases where there is plenty of work to go round without severe competition, but where there is a very large number of manufacturers and competition is keen an amalgamation is practically impossible.

WITNESS No. 251

MR. JOHN KIRKALDY 506

(John Kirkaldy, Ltd., 101, Leadenhall Street, London; Marine Engineers and Government Contractors).

State of trade There is a general depression in trade. It is not specially connected with foreign competition. The cause of the present slackness is that the Government programme for shipbuilding has practically been stopped for the last few months. In addition to that there has been a very great dearth of shipbuilding for mercantile purposes. Things are now taking a turn. In Germany and Italy the trade has been lost to us simply because the Governments of those countries take a very great interest in their own domestic industries, and orders have been given by the Governments that no work is to go to foreigners which can possibly be done by native manufacturers. In the German navy they will not use anything of English make if they can possibly get it from Germany, and the same applies in Italy, the idea being to give employment to their own operatives in preference to giving work to foreigners. It would be a very good point if our Government did the same. If you cannot get a thing in this country it is ridiculous to talk about making it, but if it can be made here the native manufacturer who has to pay rates and taxes and find employment for his people ought to have the preference. In the specification for any particular kind of plant ordered by our Government there should be a condition stipulating British manufacture. Foreign firms do business through agencies here and pay no Imperial rates and taxes. They start an office in London or at a seaport 507 or town where they wish to dispose of their goods, making an arrangement with an agent as to rent, salary, commission, &c. All the orders are booked by the agent and transmitted to his principals. The goods are sent over with an invoice from the foreign house, the agent has nothing further to do with the order or collection of the money, &c. He simply gets the orders and receives his commission, and the consequence is that all these goods come in and pay nothing towards the revenue expenses of the country; they are clear of income tax, &c. This amounts to protection in favour of foreign competition. In the United States a special Act of Congress stipulates that every contract taken for the building of a warship, for instance, shall provide that the whole of the materials used in that ship are to be of native production. Therefore the foreigner is debarred from sending anything in for the construction of that ship other than things not produced in the country at the present time, and if it is not so produced they take note of it and very soon start to make it; consequently the foreigner is shut out altogether. There is no equivalent to the Act of Congress in Germany and Italy, but there is a very strong desire by the Governments that everything should be produced internally. I have received letters from our agents in Germany and Italy strongly confirming this.

We are able to sell the goods we manufacture to such countries as Germany, but it is not a profitable thing to do. As to Italy, with its cheap labour and the duty that is put on the goods, it is practically impossible to sell much machinery there.

508 We have very little Colonial trade. In Canada they have factories which make such things as we could supply to them, and in Australia the business has been so bad for years past that there is practically no demand.

Duties It is only a reasonable proposition that any goods sent into this country by a foreigner should bear their due proportion of taxes, so as to put them on an equal basis with native products. I do not suggest imposing a protective duty for the native manufacturer, which would probably cause the manufacturer to become careless, because he had some advantage over the foreigner; but the two competitors ought to be placed on an equal basis. The English manufacturer has to make a return showing what his profit has been during the year, and has to pay income tax on that. But the books of the foreign manufacturer not being kept in the country, and the money not being dealt with here, being directly remitted from the purchaser to the seller, there are no means of taxing him other than by putting a duty on his goods. By taking the figures of the Imperial and municipal rates and taxes and ascertaining their percentage of the total turnover, we have the means of ascertaining what proportion of the duty should be regarded as their equivalent. A duty equivalent to the Imperial and municipal taxation which the British manufacturer has to pay should be paid by the foreigner. Taking the main products of our industry, a duty of about 10 per cent. would meet the case.

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WITNESS No. 252

SIR ANDREW NOBLE, Bart., K.C.B., F.R.S.

(Chairman of Sir W. G. Armstrong, Whitworth & Co., Ltd., Newcastle-on-Tyne and Manchester).

The firm of Sir W. G. Armstrong, Whitworth & Co. is in a special position, because our manufactures being special, we have neither the competition nor the same difficulties to fight with that other manufacturers have, but at the same time, as President of the Engineers of the United Kingdom, I naturally have some knowledge of what goes on in other engineering trades. Our branches at Elswick and Openshaw, in Manchester, are shipbuilding, both mercantile and war vessels, and all the different appliances that are fitted to them, such as artillery, gun mountings, hydraulic machinery, the making of armour-plates, field and garrison guns and carriages and many minor trades. Having been obliged to travel through nearly every country in Europe, I have a considerable knowledge (although I have only been in them for a short time) of what goes on in those countries.

510 **State of Trade** Employment in our trade and district in recent years has been variable, even more in our own than in ordinary work, although we have been exceedingly busy now for some years, with occasional slackness. Many people are out of work who could be profitably employed in the engineering trade. On the North-East coast, if you exclude my own firm and perhaps one other, the engineering trade and trades in connection therewith are very considerably reduced. This is due partly to the change from iron to steel. The introduction of foreign forgings, &c., has also helped to reduce English manufactures. Of the eminent engineering firms who first brought Newcastle into distinction, one has entirely disappeared, and others do business in a very reduced way. A great quantity of work is sent from Germany, and it is humiliating to see in many places our manufactures being replaced by those of Germany and America. I saw a 250-ton crane the other day, I think on the Clyde, which had been made in Germany.

Italy We have an establishment in Italy where we build guns and mountings for the Italian Government. There we are obliged to buy the steel from Italian sources. The duties against imports are heavy, but we have to pay considerably more for steel there than the price at which we could get it from England, even paying the duty. On the other hand, labour is considerably cheaper, and the Italians have shown rather a singular aptitude for mechanical work. We expected great difficulty at first in getting the mechanics to work to the degree of accuracy we were accustomed to in England, but they are as accurate now, or very nearly so.

511 **Japan** Nearly all foreign nations that we have business with are more or less trying to make all warlike and civil material in their own country. For example, take Japan. We have, and have had, very large orders from Japan. We armed the whole of their marine, and now we are sending out chiefly forgings in order that they may make guns and mountings themselves. They cannot make large steel ingots yet, but their skill is something wonderful. I consider we have a great deal to apprehend from Japan in the future as regards competition in Eastern markets. Their wages have risen somewhat since the war, but they are exceedingly low ; where we pay 6s. or 7s. a day at present, they are paying from 1s. 8d. to 2s. 4d., and they do very good work. Where we chiefly have to fear competition is in China. They are now supplying machinery and also small cruisers to China and cutting us out of that trade. Our own trade with China is very variable ; sometimes we get two or three ships to build and arm and occasionally an order for guns, but it all depends on circumstances. We have a year or two of very good orders and then for 2 or 3 years we have nothing. That applies to every class of machinery, but especially to ours, as we are so much dependent upon political questions.

Colonies We at one time supplied the Colonies direct, chiefly in the matter of hydraulic machinery, guns and mountings, but of late, in order that the armaments may be of the same patterns as the Imperial Service, the orders are passing through the War Office, so that our direct trade is not what it has been.

Causes of Change The change in the state of trade in the district is chiefly due to foreign competition. It is very painful to see how many trades have been more or less extinguished. Many of them do not belong strictly 512 to engineering, although they give engineers a good deal of work. The Tyne was once the centre of the chemical manufacture of the country, but now that has almost gone. In 1863, when I was secretary to the British Association, their meeting was in Newcastle, and I remember we had a report from the glass trade, and the whole place was dotted with glass manufactories—50 or 60 glass works ; now there is not one on the Tyne, although there are one or two in Durham.

Cost of Production The cost of production in this and other countries is about the same in my business. We could produce cheaper in Italy if we sent our own steel there. That really balances the advantage of labour.

Profits Profits have diminished in relation to turnover, not merely in my own business, but in the engineering trade generally. The net profits have fallen off owing to the increased demands of labour, though some small branches of our trade have become more remunerative.

Wages The rate of earnings of mechanics in our trade and district has largely increased in recent years. It is now about 45 years since I went to Elswick, and at that time we paid a fitter between 23s. and 27s. a week ; we now pay from 34s. to 37s. Our wages, exclusive of officers, at present amount to £1,750,000 a year. The wages in Italy are very much less. The foremen are English, the employees are all Italian. There are one or two exceptions for specialities (men in charge of furnaces and employments of that sort,

who have to be carefully trained), but practically it is as I have said. The rate is somewhat under two- 513
thirds of ours, and less than that when there is no special skill.

Administration Charges

The only instance I am able to compare with regard to the burden of administration charges is in Italy, and there, so far as the works are concerned, we have far less burden than here. There is one great injustice in England in regard to the income tax—manufacturers are only allowed to reckon depreciation of their buildings at 1 per cent. per annum. I have been at Elswick 45 years, and in that time many of our shops have been rebuilt three times.

Raw Material

We use all kinds of materials, iron, steel, copper, &c., and everything required for the manufacture
of high-class steel. A large quantity of iron comes from Sweden, and that cannot be dispensed with ;
we have to face that. A large quantity also, where quality is not of quite the same importance, is made
from hematite, and very good steel it is. The history of steel production is remarkable. About 1880
England was the largest maker of steel, and America made about 30 per cent. less. In 1888 America
equalled England and in 1893 Germany nearly equalled and America largely surpassed England. In 1898
the German manufacture was much greater than that of England, while the American was three times as
great as ours. Of course the great increase in steel is due to the substitution of steel for iron. Except for
special purposes iron is now almost unused, so that the increase is chiefly attributable to the change from
one material to the other. Between the dates I have named the manufacture of steel in England has increased
four and three-quarter times. Between the same dates Germany increased her manufacture of steel 514
thirteen times, and America seventeen times. As an Englishman one feels humiliated by these facts.

Dumping—Effect on Labour

In my judgment labour suffers most from the dumping of goods ; many are very glad to buy shafts at a very low price, but that means a great loss to the British workmen. Taking crank shafting, the loss to labour would be at least about £10 a ton. Another important point that ought to be emphasised is that recently, in the North of England, twelve iron or steel works have been entirely or partially closed. Between 1901 and 1903 the importation of steel into England had increased from about 760,000 tons to 1,321,000 tons. The closing of these works must mean the loss of hundreds of thousands of pounds to the working man. It is a most humiliating thing to see the way that the trades in which we were once the first in the world have all passed to foreigners. What has become of the steel workers who have been thrown out of employment by the closing of these steel works I do not know ; they might be the unemployed who have been interviewing Mr. Balfour, but without question there is a great deal of distress in the North. Some may have gone to the coal mines, but it is difficult to find out what has become of them. A duty upon steel would have been greatly to the advantage of the country and especially to the advantage of the working man.

Treatment of Workmen

In the German workshops there is a good deal more care taken of the comfort of the men than
is generally taken here. Of course their climate in winter is much more severe than ours, but we are trying
to imitate Germany by introducing means of putting hot or cold air into the shops, but in other matters
we are still behind. The men there are made more comfortable. They are allowed to have a man to bring 515
them tea at a very moderate price during their work. In the shops also there is better discipline and fewer
men moving about. The workmen are always at their machines ; you do not find men away with an excuse
of wanting a tool ; they have always tables with their tools beside the machines, and their cleanliness is
altogether of a higher order than here. The reason of more pains being taken with the workmen, and more
money being spent in making them more comfortable, may be that they have better security owing to the
protection they receive in their country against foreign labour and the greater continuity of employment.
At all events it would give them some assistance.

Effects of Conscription

Conscription in Germany has been of great benefit in training the men to the habit of obeying commands. Even in this country I remember after the Crimean War Sir Henry Lefroy told me that the men who had been sent out to Corfu and other foreign stations always commanded from 1s. to 1s.6d. higher wages than any other labourers in the agricultural districts, because they would do what they were told. There is no need to encourage our men to go into the auxiliary forces ; they are quite willing to do so. Our own men go into the Volunteer Artillery, and during the war we sent a battery out to South Africa, and that battery was specially useful.

Technical Education

There is no question about the advantage of technical and commercial training ; I have taken some
little part myself in establishing the National Physical Laboratory, which is not, even among manufacturers,
sufficiently appreciated. The making of all the aniline dyes which originally were due to discoveries of 516
Faraday and Perkins has been driven abroad. It is a disgrace that if we want any bottles for our
laboratories we have to go to Germany for them ; if you want any chemicals you have to go to Germany,
and a great deal of that is due to want of scientific training.

Legislative Restrictions

Many trades that have had their origin in England have passed almost entirely to foreign countries, partly owing to Government regulations. The following is an example. I am a member of the Committee of Explosives. There have been complaints that in the manufacture of explosives and in other manufactures we had no chance of competing with foreign countries on account of the cost of alcohol. Alcohol in Germany costs 5d. a gallon ; in England you have to pay 11s. duty. Now, in the manufacture of certain explosives alcohol is a necessity. The Government (chiefly, I believe, by the intervention of Mr. Haldane) have introduced some amelioration as to explosives. The new Act now passed by the Chancellor of the Exchequer in reference to alcohol is satisfactory. The duty is very much reduced, but some plan ought to be devised by which manufacturers could obtain alcohol as cheaply as German manufacturers, paying for a revenue officer to see that none is used for illicit purposes. There is a want of elasticity in the Government regulations, and the officials appear to be afraid to depart in any way from rules which have been once laid down.

517 **Local Rates** Local rates have gone up very considerably. The sum we pay in rates is proportionately much smaller in Italy than in this country.

Standardisation British trade has suffered to a considerable extent from the absence of a proper system of standardisation.

Decimal System I am quite sure it is for the interests of the country not only to have the decimal system but the metric system. I am aware that some distinguished men differ, but I have had a great deal to do with translating foreign experiments and foreign papers, and those who have not had the experience have no idea of the amount of labour involved. Most of the English weights and measures are devoid of system; some are founded upon blunders, and many of them on local habits. There has been an immense amount of misunderstanding and difficulty between the short ton and long ton. I favour the decimal system and do not find much trouble with the metric system. For instance, at Pozzuoli all guns and mountings are made upon exactly the same plans as we have because we make the plans, but the Pozzuoli plans are all figured on the metric system. There is no serious difficulty. In all our scientific books the decimal system has been adopted, and no learned society will receive a paper in which temperatures are not given in the Centigrade scale.

518 **Foreign Competition Abroad** English machinery is practically excluded from Italy, partly owing to the competition and partly also to other countries—for instance Switzerland—being able to supply cheaper. It was most humiliating when I was once asked to inspect a very large concern. They were furnished with rolling mills, Bessemer plant, &c., and I expected to find a very large quantity of English machinery there—this is 12 or 13 years ago—but there was not a single machine of English make, though all the machinery was of original English design. There were only two little lathes of English make, and they were in the testing room. They were the only two machines in that large place, on which over a million of money had been spent.

Foreign Import Duties The fact of our having an open market for everybody is a material factor in enabling foreign competitors to put on prohibitive tariffs with success.

Preference I consider it exceedingly advisable that we should give Colonial preference. I may say that as far as my knowledge goes the Colonial trade is the only part of our trade that is increasing. I am speaking for the whole engineering trade.

WITNESS No. 253

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THE HON. CHARLES ALGERNON PARSONS

(Representing C. A. Parsons & Co.; Mechanical and Electrical Engineers, Heaton, Newcastle-on-Tyne).

My firm make steam turbine engines, dynamos and alternators, in sizes up to 12,000 h.p., the average size being about 500 h.p. The largest turbine power that has so far been applied to ships is 12.000 h.p.; in cross-Channel boats it is usually from 7,000 to 10,000 h.p. I anticipate an early and rapid extension of the turbine principle to the faster class of mercantile vessels of a speed over 15 knots. At present it is not proposed to apply the turbine to the tramp class of steamer of 10 to 12 knots speed. Some advantage in the economy of coal exists with vessels of 16 knots and upwards; at a lower speed than 14 knots the ordinary triple-expansion or quadruple-expansion engine is, generally speaking, cheaper than the turbine in the first cost and coal consumption. The speed of 15 knots and over may be taken to include almost all cross-Channel passenger vessels, many liners and almost all vessels of war. The majority of turbines so far manufactured have, however, been for the driving of dynamos and for use on land.

520 **Conditions of Trade Abroad** There are several companies and firms on the Continent manufacturing our turbines with which my firm is to some extent connected; the turbines are made in accordance with plans supplied from my works, but with slight variations, not however sufficient in my opinion to materially affect a close comparison of cost of manufacture in the two countries. With one large Continental firm in German Switzerland and favourably situated for economical production, I have been able to compare costs of manufacture, costs of labour and material and standing charges. **Cost of Production** On comparing the costs of manufacture of turbines made by these works, according to practically the same plans and mechanical conditions, I find that the net cost of production at Newcastle-on-Tyne, including establishment charges, is on the average about 3 per cent. less than in German Switzerland. Analysing the comparison, I find that the average cost of materials in Germany and Switzerland is 17 per cent. more and the cost of labour is about 10 per cent. less. This relates to turbine engines of similar sizes of between 150 and 2,500 h.p., and it will be seen that the cheaper materials in England more than counterbalance the greater cost of wages. It is somewhat difficult to compare the exact equivalents but I am under the impression that the establishment charges and the cost of selling on the Continent, which are included in the above comparison, are greater in Switzerland to the extent of about 10 per cent. on the selling price of the article. This may be partially accounted for by more showy offices and the more extended area over which the articles are sold on the Continent.

Labour As to labour costs, our men do much more work per hour. Man for man the English workman produces about 60 per cent. more than the foreign workman when engaged on any kind of large work, but

521 this is not so in the case of small work. The principal materials included in the comparison that are considerably more expensive in Switzerland than in England are iron and steel castings and forgings. We buy almost all our steel and iron castings and forgings and copper from British firms. The cost of the materials has been arrived at in this way. The two works keep their books in a very similar manner. There are columns for labour material, and works charges, and the sum total is the net cost. I have not gone separately into the various items making up the total cost of material beyond making a small allowance for a slight difference in the design of the engine as made in the two countries. As regards labour cost, allowance has been made for the relative finish of the articles made in the two countries, for it is my opinion that the external finish of the Swiss manufacture is better than the English, but the essential parts in the machines made in the two countries are equally good. The wages of the Swiss workman are a little above one-half on the average of the British workman. The following table gives the rates of wages per hour of the various classes of labour employed in the manufacture:—

	Switzerland.	England.
	d.	d.
Borers	6·0	11·2
Coppersmiths	5·0	10·6
Toolmakers	4·75	8·6
Blacksmiths	4·75	7·2
Fitters	4·5	8·6
Bladers	4·5	10·0
Labourers	4·0	4·9
Turners	5·75	10·0
Pattern makers	5·85	8·6
Joiners	5·25	8·27
Planers	5·25	9·1
Winders	4·75	8·8
Painters	4·75	8·0
Casting Cleaners	4·1	5·1

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In Switzerland they work about 30 per cent. longer hours than in England.

Foreign Competition at Home

There is practically no competition in our special industry from America. We sold our American patents to the American Westinghouse Company of Pittsburg some years ago and have no connection with them now. We have sent a few turbines to America at the commencement but the tariff has stopped this export trade. They are now manufacturing extensively themselves under the patents they bought, and also other American firms are manufacturing some other types of turbines, chiefly of the Curtis type. The British Westinghouse Company in England manufacture under licence from us. There has been practically no importation of foreign-made turbines into England. We have very little competition in neutral markets as yet, chiefly by reason of patents' protection. 523

American Machinery

We buy, to a relatively small extent, American-manufactured machinery for our shops. We find certain American special tools better for our purposes than English, but as a rule they are not so well made as the average equivalent English article, when obtainable; they are about the same price and the material is not so good. The Americans have developed some special machines to a high degree of excellence for certain classes of work, repetition work chiefly. They have been ahead of us in this, and thereby have obtained in certain fields considerable hold on the British market, but the British manufacturer is turning his attention in this direction, and is in many cases now making a better article at the same price.

Profits

The building of marine engines and auxiliary machinery and boilers for ships, engines for electrical purposes, dynamos, motors and alternators has considerably increased of late years, but the prices obtained for dynamos and alternators have been much reduced, owing chiefly to foreign importation, and the profits have consequently diminished. At one time American dynamos came into this country, and even now a certain number come from Germany, sold apparently under cost price, and probably the result of the disposal of extra production, *i.e.*, dumping on the English market. Some have moreover had in view to get the special articles with which they were identified distributed and known in England, to enable them to start an English allied company, and having started the trade they put up the price. There is practically no American-manufactured dynamo machinery coming into England now and there is not much from Germany. We can manufacture as cheaply as they can, and there is a wish amongst buyers to have the article manufactured at home. 524

Technical Education

In mechanical engineering, as compared with foreign countries, we have not in my opinion suffered serious disadvantages from lack of technical training. In comparison with our allied works on the Continent the English firm has a numerically smaller staff, but the members receive higher salaries, their technical training is as good, and they get through more work. We have a certain number of Cambridge and Dublin graduates, and young men from technical colleges, in the higher positions, but the workmen and foremen are chiefly recruited from youths of the artizan class, some of whom attend night classes and some go for a term or two to a college, for instance to the Durham College of Science or the Rutherford College at Newcastle, or to other colleges, and attend courses of lectures and obtain a really good education. At one period the Germans were ahead of us in dynamo manufacture, not in consequence of their technical training, but because of our want of a field for our manufacture. On the Continent they have a large amount of water power, which we have not, and that tended to develop large dynamo machines, and having got large dynamo machines started, the works followed. In England there was practically no extensive distribution of electricity until 1890, but this was not due to any want of mechanical skill or technical

525 training. In turbines and in high-speed dynamos and alternators England has been many years ahead of other countries.

Patent Laws

The operation of the patent laws in this and foreign countries is unfavourable to the British as compared with the Continental patentee. The position as regards patented articles is somewhat analogous to that of unpatented articles under the tariff laws. Foreign patents are granted to the British patentee generally without prejudice as regards nationality, but to maintain the validity, in most Continental countries, it is necessary to work the patents commercially within from 1 to 2 years of the grant. To comply with this condition it is not sufficient in general to get one article manufactured in the country; it is necessary to arrange with an existing works in the country to start manufacturing the article, or to establish works in the country on a commercial scale. In the case of very many patents, especially of important patents, the expense of starting the manufacture in several foreign countries within 2 years of the granting of the patent is prohibitive. The object of this regulation of the patent laws is to compel manufacture in the foreign country and prevent importation of the patented article. The condition of commercial working to maintain validity is not imposed in the United States and in some foreign countries, such as Italy and Norway, formal working or advertisement at a moderate cost only is required. The Continental patentee has no conditions of working imposed upon him in England, but only this proviso that if required to do so he is compelled to grant a licence to manufacture, the terms of licence being in case of difference settled by the Privy Council. Further, in the case of many patents, especially when the first patent is one of a
526 group to follow, as development of the invention progresses the necessity of communicating his trade knowledge in the early stages to competing foreign firms is generally very prejudicial to the English patentee and manufacturer. A patented article cannot be imported into Canada after 2 years from the date of the grant of the patent without incurring annulment of the patent unless the patentee is able to get a special Act of Parliament passed to extend the 2 years' limit. Also anybody in Canada may petition for a compulsory licence. So under both heads they impose restrictions on the patentee. Canada, for the English patentee, is the worst country of any at the present time in regard to patent laws.

Absence of Enterprise

The principal materials we use are iron and steel castings and iron forgings, and also copper and tin. A large quantity of thin iron plates are also used for dynamo and motor construction. They are thin, rolled plates from $\frac{1}{100}$ to $\frac{3}{100}$ inch in thickness, of special quality, and the larger sizes can only as yet be obtained from Germany. English manufacturers have not yet put down the rolls wide enough to roll the larger sizes, and the Germans were ahead of us in the quality up till quite recently. There seems to be an absence of enterprise among some British manufacturers. There is another article which we buy from Germany in which the same thing is manifest—large iron tubes, preferably weldless. In England we can only get them up to a certain size, and the German manufacturer will manufacture them of a superior quality, weldless, and up to very large sizes, and we are forced to go to Germany as the demand for the larger sizes is becoming considerable for marine turbine engines; but in this instance I believe that British manufacturers
527 will soon put down the necessary plant. The Germans have had this plant already for some years. They are called spun tubes in Germany, and the steel ingot is punched and rolled out into a ring. I believe that the method was originally proposed by Sir William Siemens for making boiler shells 25 years ago or more. I think this is an instance of want of enterprise in the English iron manufacturers and skilled steel founders, partly brought about by the absence of a tariff. I attribute the want of enterprise to want of protection. There would be much more enterprise shown generally if the manufacturers were protected. The tube trade has been very hard hit indeed by foreign competition, and there has been little encouragement to put down new plant. They suffer from want of funds to keep the works quite up-to-date. To adopt the newest things you must have a prospect of a reasonable return on the expenditure.

Duties

In the case of the thin iron plates used in the construction of dynamos, 15 per cent. duty would be sufficient to protect it, and on steam engines and dynamos 15 per cent. would be ample. Plates and tubes for putting together here ought to have a duty of 10 per cent. There is no reason why we should not make as many plates as we want. The effect of a duty would be rather to encourage further expansion of trade and reduce the cost of production by keeping the works that are now going more fully employed. A trade that is liable to be cut into by foreign combinations against it at any moment has not the heart to expand.

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WITNESS No. 254

MR. JOHN THORNYCROFT

(John I. Thornycroft & Co., Ltd., Chiswick, Southampton, and Basingstoke; Marine and Mechanical Engineers and Shipbuilders).

State of Trade

My firm's original business was the building of torpedo boats and fast light-draught vessels. About 25 years ago one or two other firms in the country were building this class of vessel, and as foreign countries have gradually taken up their manufacture my firm has gone into other manufactures. To show the extent to which competition in this class of work has grown: Recently a European power made inquiries for some torpedo boats and there were 15 firms who made proposals that were practically satisfactory, and of those 15 only five were British. As to war vessels, it is only natural that foreign countries should build for themselves, but for shallow-draught vessels for Colonial use we had hoped to hold our own; but now

529 the Continental countries are building more cheaply than the majority of English firms for the lighter class of vessels. I attribute that largely to cheaper labour on the Continent, and to lower taxes on the factories.

German Shipyards

For the larger type of war vessels and for the best class of tramp steamers and liners there is no country in the world that can touch England at present, but for the smaller and cheaper type of vessel for Colonial work, and small tugs and fishing boats, there is no doubt that Germany and Holland can build a great deal more cheaply than we can here. Germany can beat us in cheapness in the two extremes—in the finest class of Atlantic liners and in the small class. In the small class of vessels plant is not such an important consideration, and it is mainly the question of taxes on factories and rates of labour, and that would apply equally to the middle class. In building the small vessels Germany is able to cut us out; ultimately that will apply to the middle class too. Vickers' or Beardmore's or Armstrong's yards are quite as well equipped as any Continental yards. There are notable yards in Germany, such as those belonging to Krupps, which have the best possible appliances; but taking the general run of the yards they are not as well equipped. Beardmore's yard is quite a new one, and they have recently put in all the labour-saving appliances they could find.

At present there is a great demand for vessels, and our shipyards are busy. The Germans are not turning out anything like the number of boats we turn out, because they have not nearly the number of yards, though for the last few years Germany has made a greater proportion of increase in her shipbuilding than
530 England. The work that our yards are now busy with is generally a special class of ships—turret-deck ships and very economical high-class vessels. The boom in shipbuilding at present is an effort of the shipbuilders to build larger vessels which carry cheaper than the old ones, which are being sold now to foreign countries. There is no reason why the Germans should not have the best tools and equipment. There is no secret in the manufacture of ships or torpedo boats with regard to machinery and tools which the shipbuilder requires; indeed, many of them have been evolved in Germany—the best plant. In a new industry they can acquire the tools and the knowledge as easily as we have acquired it. I do not know that labour is generally cheaper in Germany. In many places the best class of labour is almost if not quite as high as here.

Raw Material

The raw material cannot be much cheaper in Germany than here; it must frequently come from the same source. The instance of the shafting sent over here does not prove that their shafting is so much cheaper; it is a question of selling at below cost here.

Constructional Ironwork, Shaftings, &c.

The question of materials and sections is an important one. I do not know whether that applies to any extent to ships, but in the cost of constructional ironwork, of which Germany is sending us a great deal at present, they gain greatly by cutting things a good deal finer. Our manufacturers have only a limited number of sections for use in constructional work, whereas in Germany they have two or three times the number, and they would not put in the least piece of material in excess, so they can make their profit out of the material they save. In order to get the trade German builders have sold cheaper in England than they would do at home or in our Colonies. A number of German machinery makers are cutting very hard with
531 the English manufacturers in crank shafts and shafting, and recently my firm bought shafting for a foreign torpedo boat at about 50 per cent. less than we could buy it for here. We are in close touch with a number of our manufacturers, and they assured us that the price must be below cost, and there is no doubt that it was a case of cutting to get in here. We were pleased to take advantage of it because it was perfectly good. The price was lower than in their own country.

Boat Motors

Motor engines at present are rather taking the place of steam engines for small boats, probably owing to the fuel being more readily handled. In the United States the boat motor has been developed very rapidly, and on the Continent nearly as rapidly, alongside the internal combustion engine for motor cars. The English manufacturer is suffering from motors coming from abroad, which are sold here at prices which probably do not cover the cost of production. There are also small firms starting to manufacture motors, thinking they will be able to compete with these imported motors and make a profit. They put these motors on the market, and very quickly fail. English manufacturers are rather apt to simply put a machine which is meant for a motor car into a motor boat, without having sufficiently thought and planned out the difference of construction necessary for a motor boat, but that occurs more with the imported motors from the Continent. In America motors are largely manufactured for boats and sold here, but those imported from the Continent are practically the same for boats as for cars. Nearly all the firms in England manufacturing for boat purposes are manufacturing specially to that end.

Merchandise Marks Act

532 We feel that the Merchandise Marks Act is quite unsatisfactory, particularly to the motor car manufacturer. This is shown very clearly in competitions which are only for British cars. The number which nominally appear as British cars is reduced enormously when it comes to a test which is carefully gone into as to the extent to which they are British. If they were known not to be British it would certainly help the British manufacturers. I do not say the British buyer would decline to buy because the car is foreign. A British mark is put on by the agent over here, who is frequently the nominee of the firm on the Continent. They pass the Customs without any mark at all, or merely a mark on the crate. Motor omnibuses afford a notable example. There is a name-plate on many of them. We inquired as to the possibility of proceedings under the Act, and we were advised that we could not take them. We wrote several letters to different Government Departments, thinking that the Merchandise Marks Act would insist on the place of origin being given. The cars may be assembled here from parts obtained from abroad, but the complete machine is often brought here, and the body is built and painted here. The place of origin is possibly on the packing-case, but the great majority of the parts are bought abroad, the change-speed gear is made, and the car assembled. There are a great many cars made up in this way and sold as British, and it has been a very great assistance to a number of British companies to do that. They have built up their business by being able to get the parts, which they could not have got in England, but it is a question whether it is to the advantage of the manufacturer in this country. The Merchandise Marks Act rather deceives the public than

533 assists them, as it is not compulsory to put the place of origin on the actual goods manufactured, and they frequently come here and are sold by a branch of the Continental manufacturing company, which acts simply as an agent for that company and makes very little profit indeed, pays no income tax and simply puts on an English name-plate.

Motor Vehicles

Since taking up the manufacture of motor vehicles, which we did with a view of making a second business and so avoiding the fluctuation resulting from foreign competition, we find a good deal more competition than we anticipated from Continental countries and from America, in motor vehicles particularly. They had several years in which to develop, and that has given them a very great start over us in design. That has been undoubtedly picked up by the British manufacturer, and now we have to compete largely with surplus stock, because they manufacture large quantities of the cheaper class of car and motor, which come here and which are not always clearly understood by the buying public to be of foreign manufacture. Questions that were addressed to my firm I sent to one or two societies particularly dealing with motor manufacturers, and asked them to get from their members replies to these questions. The gist of the answers received is that Germany exports surplus oil engines for marine and other purposes to England, to be sold at very low prices, at least 10 per cent. under English; that foreign tariffs practically shut out our manufactures, packing, duty and freight adding enormously to cost; that preference, where it exists, has been beneficial; that English patents are copied and the articles made in the United States and Germany for export to England at prices below those of English makers; and that the only remedy appears to be
534 general reciprocity, or duties, or retaliatory measures of such a kind as would lead to an adjustment beneficial to both parties. One of them, the Society of Motor Manufacturers and Traders, which does not consist of solely British interests, makes a rather interesting statement. They give a return of the cars imported and the cars manufactured here. In 1904 they give the value of cars imported as £2,000,000 odd, of parts, £345,000. In 1905, the cars imported for the first nine months were £2,064,000, and parts, £635,000. For the same period the exports of British-built cars were £240,000, and parts £80,000; in 1905, £215,000 and £80,000. The foreign manufacturers have a very strong position by the large stocks they have been able to build up. We think it would be fair to the British manufacturer to be placed in the same position as the foreigner: that if we cannot send to their country they must not send here, or that they should be only allowed to send to our country under the same condition.

Colonial Preference

With regard to the encouragement which preferential tariffs in some of the Colonies has given, we have found in New Zealand a very strong desire to buy from England, and have had letters from a number of people wishing to act as our agents who state that the preference in favour of England has given them an advantage which they could not afford to neglect. A number of British firms are now selling motors there who before the preference could not do business. The motors previously came from America, but now the American firms are taking second place. The extension of that preference in the case of other Colonies would assist us. We feel with regard to India that it is very hard that the Continental manufac-
535 turers are able to come in there on an equal footing with ourselves. Australia at present does not appear to be such a large market as some of the other Colonies There is a very high duty there, and the actual price seems to deter Australians from buying, whether there is an advantage for us over the other countries or not. If Australia followed the example of New Zealand it would certainly help.

Patent Laws

In Canada we thought there would be a good market, but there are some very curious considerations with regard to the patent laws. Under certain conditions the introduction of a patented article will annul the patent in Canada, so if you have a patented article you are almost prohibited from importing it. There was a recent example of that where the Canadian Government bought some machinery for vessels from the Parsons Steam Turbine Company, and they found that after these turbines had been imported the patent would be annulled unless they passed a special Act of Parliament to allow them to come in. The importation of an article patented in Canada from outside invalidates the patent in Canada, because under the patent the article has to be manufactured in the country. It is the strongest form of Protection. They insist on the patented article being manufactured, after a certain time, in the country itself, and that is the law in many other countries. The result is that the licensee who is building the turbines is prohibited from importing them into Canada. We think it is rather a hardship that in so many of our Colonies, which are practically one country so far as imports are concerned, one has to take out a patent in each sub-division of a Colony. In Australia and South Africa a number of patents have to be taken out where one should be sufficient. One patent to cover the whole of the British Colonies would be excellent, but if it were reduced to one
536 for India and Ceylon, one for Australia, and one for South Africa, it would help very much and would encourage people to take out more patents.

Rates and Taxes

I was at a factory at Düsseldorf a short time ago, and the rates there appeared to be a mere nothing. All the taxes were on imports and the like. The rates and taxes in the German Empire are fixed in the first place by the amounts which the various States have to contribute towards the maintenance of the Empire as a whole; in the second place by the amounts needed for the internal economy of each separate State; and lastly, by the needs of the various municipal bodies in the State, which may vary greatly, according as the community is rich or poor, or as the public institutions and their upkeep make greater or lesser demands upon the public purse. In the Kingdom of Saxony a progressive system of classification exists; that is to say, the higher the amount of the income the higher the rate of taxation. For instance, the State income tax on an income of:—

Mk. 400 to 500 is Mk. 1.
„ 950 „ 1,100 „ „ 8.
„ 2,800 „ 3,100 „ „ 54.
„ 4,800 „ 5,300 „ „ 128.
„ 9,400 „ 10,000 „ „ 282, and so on.

If the receipts from this tax do not suffice to cover the amounts required for the contribution to the general exchequer of the Empire and that of the State itself, an additional percentage is levied until the deficit is made up. The communal tax (town or municipal rates) is usually a percentage levied in proportion to the State income tax, and the amount is entirely dependent on the requirements of the administration of the town or community. The richer the municipality or community, and the more prosperous its inhabitants, the lower must evidently be the demands on the purses of the individual citizens; the poorer the municipality, the higher are its demands. In Leipzig the demands have lately amounted to about 140 to 150 per cent. of the State income tax, but there are towns which levy less and some which levy considerably more than 250 per cent. of the State income tax. After these two principal rates come those on landed property—ground tax, Church tax, State fire insurance, and property tax; the latter however is a purely personal tax, levied on persons whose fortune exceeds a certain fixed amount. Last of all, those amounts come into consideration which employers of labour are obliged to contribute to—the sickness and accident insurance funds, old age and invalidation pensions for their workpeople and employees, employers' federations, &c. 537

No tax is levied on industrial undertakings unless the annual net profits reach the sum of Mk. 1,500, or unless the invested and working capital amount to at least Mk. 3,000. Where taxation takes place it is based on self-assessment of the net profits or the invested and working capital, and only in cases where self-assessments are not returned in due course is an official assessment made. On the basis of this assessment a *pro forma* tax on industrial income is determined, according to the following scale of taxation:— 538

Annual net profits.	Invested and working capital.	Annual tax.
1,500— 4,000 Mks.	3,000— 30,000 Mks.	4 Mks.
4,000—20,000 ,,	30,000— 150,000 ,,	32 ,,
20,000—50,000 ,,	150,000—1,000,000 ,,	156 ,,

This *pro forma* tax is however not actually levied, but forms the basis for the communal rates. In Mülheim-Ruhr, for instance, 250 per cent. of this *pro forma* industrial tax is paid to the town authorities by way of rates; the industrial tax itself however is not paid.

WITNESS No. 255

THE LATE SIR THOMAS RICHARDSON, K.B.

(Richardson, Westgarth and Co., Ltd., Hartlepool, Middlesbrough, and Sunderland; 539
Engineers and Ironfounders.

State of Trade

Our manufacture consists principally of marine engines. We have a large electric branch of our works in connection with our turbine department, but we act more as agents. We are agents for Brown, Roveri and Co., whose works are in Switzerland and who were some years ago in the forefront of the electric trade, but at the present moment electric manufacturers in this country have progressed so much that they are quite able to compete against the foreigners, not only in price but in the article which they manufacture. On the whole the state of trade in our district is very satisfactory. From my experience of what has happened in the past we have got through the bad times and are now in for a few years of good trade. This is not merely with my own firm but all the firms employed in marine engineering and engineering generally. The improvement set in a few months ago and is due to the belief of shipowners that freights are going to be better. Generally speaking we have not suffered from foreign competition. There has only been the usual variation of good and bad trade. The competition in marine engines is entirely between British manufacturers but we do not export so much as we did. Up to seven years ago we engined ships built in this country for Italy; since then we have sent engines to be fitted on board ships built there. We are doing a larger volume of trade now than we were, looking at it from a monetary point of view. The marine engine of to-day is a very different machine from what it was 10 or 20 years ago, and a more costly one. The volume of trade in marine engines is as great now as it was years ago. We are losing our trade in Italy and other places owing to the increasing bounties. They get a bounty on any ship built entirely there. 540 We do not send engines to Germany except when fitted on board ships sold to Germans. We supply engines at present to Norway for ships built there, and have during the last 10 years supplied £15,000 to £20,000 worth every year to an Italian company at Spezzia. They are gradually dwindling off and we fear we shall no longer be able to compete there because the Italian Government are putting on a protective duty. We have built many engines for British shipbuilders who have sold them to the Germans and Italians and to other foreigners who now in a great measure build those ships and engines themselves. A large new turbine shop was erected by us in Hartlepool some time ago. We built up the walls ourselves and obtained tenders for the iron frames. The lowest British tender we received came to about £4,450. We purchased the ironwork for this building from Germany for £3,300 (the glazing of the roof was not included). So far as forgings are concerned, as manufacturers we do not suffer from foreign competition, but it is very likely we shall do so in the future because our forges are gradually going into disuse. Some are going to pull their forge down and put up some other works in its place. In the future what will that mean to this country? If we want forgings after we have pulled down our appliances and the men have turned to other trades we shall be at the mercy of Germany, and they will be able to charge us exactly what they like for them. Our large foundry and forge at Hartlepool are capable of dealing with all our requirements for the several works and we have no need to buy any castings abroad. We buy foreign steel castings at Middlesbrough but not at Hartlepool works. For 10 or 12 years past we

Forgings

541 have largely bought rough-turned forgings and steel castings from Germany. Steel castings we generally buy through agents. We try to buy them in this country as much as we can. Prior to getting them from Germany we made them ourselves, but now we can buy them considerably cheaper than we can make them. Working a forge constantly is the main secret of working it economically, but that cannot account for the difference, because when we started our forge was working continuously. Now we merely manufacture piston rods and connecting rods and do that chiefly because we get occasional orders for some shafting at a remunerative price. I believe the price got in England for forgings by Germans is less than that at which they supply their home customers. The following table shows the comparative cost of British and German shafting respectively :—

	Our cost per ton including working charges. £ s. d.		German cost per ton delivered free Hartlepool. £ s. d.
Tunnel shafting	11 2 0	..	10 6 8
Crank and thrust shafts	14 3 6	..	10 12 11
Piston and connecting rods	20 0 0	..	28 13 4

Our cost per ton is for black forgings only. German shafting is all rough machined to within ½-inch.
542 If our shafting were machined to same condition the extra cost would be £1 10s., £3 and £12 per ton respectively. The total quantity made in our forge in 12 months ended August 31st, 1904, was 1,217 tons. Total bought from Germany (same period) 620 tons. Total quantity made in best year prior to German competition (August, 1900, to August, 1901) 2,494 tons.

Labour

We are not employing so much labour as formerly. We have our usual fluctuations of good and bad trade, that is to say when shipowners cannot afford to buy ships we have less employment, and another year there are many more steamers built. With regard to continuity of employment the Amalgamated Society of Engineers calculate that with the variations during the last depression, not more than 3 per cent. were out of employment. I attribute the cheaper production of the Germans in a great measure to the fact that the labour is very much cheaper there than in Hartlepool where a peculiar kind of skilled labour is employed. There is a great deal of very rough work about it, and the only man who has practically to exercise any very great skill is the head forgeman. In Hartlepool we have a very large import of timber which comes in with a rush and men are paid a very high wage for doing the work in connection with it. This in a great measure regulates the amount we have to pay to strong men suitable for our work and who can get good employment in carrying this timber. These men are paid on piece; that is the forgeman is paid a certain rate per ton or per cwt. for making these forgings and he arranges with the men who are under him, the same as is done largely in ship-yards in the building of ships.

543 **Labour Difficulties**

When building our new turbine shop in Hartlepool we gave the contract (as already explained) to erect the iron frames, &c., to a German firm. They came over and erected the building. They sent 15 or 16 men who stayed the entire time, doing this work very satisfactorily. They tried some English rivetters, but soon sent them away and did the rivetting themselves, but the great saving they effected in the erection of the shop was through the fact that these 16 men practically did all the trades as they came along. A man turned his hand to whatever was wanted; he was a rivetter one day, a slinger another, and so on. If it had been one of the contractors in this country instead of having 16 men he would have had perhaps 16 times 16 men; he would have been compelled to employ 16 trades, whether the men had been able to do the work or not.

Elements of Cost

	Tunnel shafting cost per ton. £ s. d.		Crank and thrust shafts made of ingot steel cost per ton. £ s. d.
Material	3 2 3	..	6 3 9
Coal	1 13 11	..	1 13 11
Labour	2 14 2	..	2 14 2
Fixed charges	3 11 8	..	3 11 8
544 Total	11 2 0	..	14 3 6

Foreign Methods

The system of checking used in the shops, and the general method of accounting by means of which prime cost is arrived at, are superior in foreign countries to those adopted here. I have no practical experience of this, but I believe they go more into details. We are practising these better methods with beneficial results at our Hartlepool works.

Technical Education

Taken as a whole there are in Germany more young men entering colleges, who attend to their work and are anxious to get on, than there are in this country; but a boy who goes to a technical college here has just as good a chance of learning as he has abroad. There are plenty of facilities here of which it is difficult to get apprentices to take advantage. To encourage them we have instituted a scheme for the advancement of apprentices which is working and promising well. There is a great lack of ambition amongst the working classes in this country. I have a son whom I have been advised to put abroad, but after investigation I came to the conclusion that the only advantage he could gain would be to learn in addition to his profession the language of the country where he was studying.

545 **Trusts**

My experience would lead me to suppose that the engineering trade can hold its own against foreign trusts, &c., provided full advantage is taken of modern methods and facilities in the shape of tools.

Duties 546

As far as our trade is concerned we do not want any tariff at present. We do not know what we may want in the future. If a duty of 10 per cent. were put on foreign forgings the difference it would make in the cost of a £60,000 steamer would be about £100 or £150 for engine forgings. We have a great many unemployed in this country. I do not know whether they are all willing to work, but the only cure is more work, and whilst we are importing manufactured articles and also importing men in the shape of aliens at the same time we are only aggravating the difficulty of finding employment. If we could make in our own factory all the things we buy abroad there would not be a very great loss to us pecuniarily, but it would cause an increase of labour. It does not affect us so much in the forgings. Perhaps we might employ about 30 more men, and pay about £60 more a week in wages. What would apply to us would apply to other firms in the same line, and thus multiplied it would amount to a good deal of work.

Preference

The development of trade in Empire-grown raw material, thus securing a valuable return freight, would facilitate trade with the outlying portions of the Empire; and the extension of British exports of manufactures to the Colonies which might be induced by preferential tariffs would overcome the difficulties alleged to exist with regard to return freights.

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WITNESS No. 256

MR. FREDERICK ANDREW

(Robey & Co., Ltd., Lincoln; Steam Engine, Boiler, and Mining Machine Manufacturers).

Engines and Boilers

State of Trade

My firm was established in 1852. I have been a director 38 years, and chairman for the past 8 years. We do not make locomotives. Our staple is steam engines, boilers, and mining machinery, of which we manufacture a large quantity. We make stamps for South Africa and other mining markets, but not so largely as winding engines, which we have made for 30 years. We also make hauling machinery. Our trade has increased through our developing new markets all over the world, especially for mining machinery. We attach considerable importance to our goodwill. Where we have supplied a machine here or in a distant part of the world and it has done good work, the purchasers would be more inclined to give an order again to us, and similarly if the Germans once supply a satisfactory machine to a foreign country the purchaser naturally goes for his second machine to them; that is the best advertisement in each case. Except for foreign competition, the state of our trade has been very satisfactory for the last 25 years. We have a large staff of draughtsmen, and are always considering where we can improve the designs of our engines. 548 We try to meet all objections, but we have never seen our way to turn out a second class, shorter-lived production.

Exports

We have shown continuous expansion, but our foreign trade has not grown at the same rate as the home trade. In some countries our trade has increased, and in others it has decreased. For example, there has been a distinct falling off in Germany and Austria-Hungary. This decline began about 20 years ago. Foreign tariffs have been gradually raised, until now in Germany and Austria-Hungary the duties are almost prohibitive. Our German exports show a decrease of 87 per cent. in 1902 compared with 1872. Between 1873 and 1903 they decreased 91 per cent.; the trade is gradually disappearing. Before the Franco-German war of 1870 we did a comparatively small trade, and after the settlement a very large one. The duties for many years in Germany have been 50s. per ton. Our trade in Austria-Hungary from 1871 to 1901 shows 88 per cent. decrease; between 1872 and 1902 a decrease of 96 per cent., and between 1873 and 1903 a decrease of 98 per cent., so that it is nearly wiped out. The State railways are competing with us there. They make portable engines and threshing machines, and their losses are debited to the rates.

We do a trade with all our Colonies, but it has fallen off during recent years. The bank collapse in the early nineties was a great blow to the Australian Colonies; the drought followed, and a smaller volume of trade has been done. Our trade is carried on there by consignments made to agents who compete with each other as regards prices. 549 Our competitors in Australia are almost all English, chiefly from Lincolnshire, our branch of engineering being almost confined to the four large Lincolnshire firms. In Australia they are not manufacturing such articles as we produce, and there is not much probability of their doing so. Our trade with Western Australia has decreased through their financial difficulties, but their demand for mining machines has been continuous and large, and the yield of gold per ton is much higher than in South Africa. The demand from New Zealand has materially increased in recent years, because the prosperity of that country has increased, although our trade has not yet recovered from the effect of the financial crisis in Australasia generally. The increasing purchases of New Zealand benefit America in a great degree, as New Zealand is nearer to America than England and can be best approached from San Francisco. In South Africa we did at one time a very large trade, which the war shut off altogether. We have a branch in Johannesburg and are now picking up again, but competition there is very keen with Germany and the United States. The mines are not working at their full capacity through the labour difficulty. The mining authorities on the Rand send large orders to Germany and the United States, as well as to England. The preference of 2½ per cent. in South Africa is insufficient to give us any advantage. The foreigner allows a rebate to cover it. The Colonial duties should be substantially increased against the foreigner. Canada gives us a preference now of 33⅓ per cent., but the close proximity of the United States nullifies our advantage.

550 **American Methods** There is no superiority of American winding engines over British. Most of their small implements are lighter and less durable than similar implements made here. The better organisation and improved labour-saving appliances, combined with the extra alertness of the workmen, are the probable causes of the United States turning out their goods so cheaply as they do. The American workman gets more money, but he works longer hours. They owe their present position to the protective duties in their own country. I have held that view for 30 years, and am more than ever convinced it is correct.

Labour Employment in our trade has been distinctly continuous; there is hardly such a thing as short time with us. The number of workmen has been steadily increasing. Thirty-eight years ago we employed 100 hands, now we never employ less than 1,500. We have had no considerable strike for 40 years, with one exception, and then only in one department of our works; the other firms in our district can also say as much. The rate of wages has increased. We have piece work as far as possible.

Raw Materials The principal materials used in our branch of the engineering trade are pig iron, steel and copper. We obtain these from home sources. Our timber comes from Russia and Sweden. We use foreign steel only to a very unimportant extent. The little wire we use is British.

Transport Rates Transport rates are much higher here than abroad. The preferential railway rates in foreign countries give the foreign exporter a considerable advantage. A Breslau manufacturer can deliver goods
551 at Alexandria at a cheaper rate than we can from Lincoln, less than half the distance. From Stettin to Breslau the rate is 20s. a ton, whereas in England the rate for the same distance is 36s. 4d. The rate from Stettin to Buda-Pesth is 36s. a ton, whereas for a similar distance here it is 61s. 4d. We ship from London, Hull, Liverpool and Southampton, that is, from the nearest port, but chiefly from Hull, only 35 miles from us.

Decimal System The decimal system is a mere fad of the theorist. It would not assist us, but on the contrary would occasion expense and inconvenience. The system is not used in the United States for any measurements.

Duties Foreign tariffs tend to efficiency of production abroad by securing the home markets. Retaliatory duties are the necessary condition of fair competition. A duty of at least 10 per cent. on manufactured goods would be of value to the British manufacturer; nothing less would. We should be better able to compete with Germany if they removed their duties, as we have had to compete against their heavy duties for many years. The price of materials used by us would not be affected by an import duty, because the home competition is sufficient to keep prices at their normal level, and our import of materials is insignificant. The effect on our prices would be unimportant. If duties were imposed we should benefit indirectly by the expansion of British home trade. There would be a greater demand for steam engines owing to the increased volume of manufactures to supply the goods now purchased abroad.

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WITNESS No. 257

MR. A. BORNEMANN

(Ruston, Proctor and Co., Ltd., Lincoln; Manufacturers of Steam Engines, Boilers, &c.).

State of Trade We manufacture steam engines, boilers, threshing machines, pumps, steam-navvies, &c. The volume of business has increased generally and satisfactorily in the engineering trade in the Lincoln district. We are all very busy. There are always fluctuations owing to competition and demand, but profits generally are reduced although the volume of trade has increased. Foreigners do not send threshing machines to this country. American threshing machines and engines are very inferior to British. They do the work for two to four years and then are thrown on the scrap heap.

Exports Ours is essentially an export trade. It is more difficult to trade in some Continental countries, but there is a slight increase in the Colonies and British possessions. England once supplied all the engines and
553 threshing machines in the world except in the United States. There are many foreign manufacturers who make the same class of machines as ourselves, and we experience a great deal of competition abroad in steam engines with Germans, Austrians and Americans. Germany is a particularly great rival in Russia, Finland, Holland, Italy and Rumania. Germans have no preference in Russia, &c. England has the benefit of the most-favoured-nation clause in all foreign markets. The duties against us affect our trade in Germany and Hungary. Our trade there is not as large as it was 10 years ago, because they manufacture so many thousand engines for their own market. The duty is not very high. Our chief foreign competitor, Lanz in Mannheim, started with an agency for a British firm of manufacturers. He copied their machines, and has to-day one of the best equipped works in the world for that class of machinery. His business has grown within the last 15 years and he now employs 3,000 hands and makes a larger number of portable engines than any British maker. He does not yet sell any machines in England or the Colonies, but it is threatened and if he can import such things as portable engines with superheated steam, &c., and the English are not abreast with him, he will succeed here because people will have the best article. He is also becoming a serious competitor in South America, one of our good markets. His machines are admitted into South America on the same terms as machinery from this country, and if he can compete with us satisfactorily there, he could do so here. The trade of Lanz and other German makers is an important factor. These great German manufacturers could probably have developed their trade even without a prohibitive tariff in their

554 own country because they do not confine themselves to Germany. They export very largely. We suffer from American competition in the Argentine Republic where we have a large business. Argentine farmers (principally Italians with empty pockets) buy American threshing outfits because they cost much less than the English. The English will last 20 years, but it suits the farmer to buy the cheap thing as progress is so rapid and alterations are introduced every year. Our last reports from the Argentine Republic are that the tide is turning and that the tendency is now in favour of a well-known English article. Experience has taught them that a flimsy article will not do. The fierceness of foreign competition first made itself felt about 15 years ago. At one time our engines could not compete in Germany because the German were better, but we now challenge any German engine. We still do a fairly satisfactory trade in steam engines and threshing machines in Germany, but have very great trouble in competing with Lanz, &c., and have to be satisfied with a small profit in order to still do a turnover in Germany. We had to set our house in order when American and Continental competition began to make itself seriously felt. The introduction of modern practices and methods, and up-to-date machinery, principally from abroad, has enabled us to hold our own against foreign competition and increase our output considerably.

Labour The South African war upset trade generally. Since the war trade excepting South Africa has improved and continuity of employment has been maintained throughout. We have been working full time during the past year or two and overtime the whole winter. Years ago we trained some foreign workmen with the result that they became our competitors, so we have now closed the door to them.

555

Wages The rate of wages has remained practically unaltered during the last three years but it is slightly higher than formerly.

Raw Materials Our principal materials are pig iron, steel boiler plates, tubes, bar and angle iron, copper, timber, zinc and leather. The iron comes sometimes from the United States and Belgium, but mostly from home sources. Zinc and steel sheets come from the Continent, some timber comes from the United States and the Continent. Our leather is tanned and finished here. We are dependent for some partly manufactured articles upon abroad because this country does not produce them. Some wholly manufactured articles are imported by us owing to the quality being better and price lower. All other materials are derived from the home market.

Freight Rates Our manufactures can be sent to any railway station on the Continent at through rates from any English port, but our trade with New Zealand will suffer from the export bonuses and preferences given on the German railways to German exports. That is a great help to Germans in competing against us. At Lincoln we have no experience of transport by water, but railway rates are very heavy. One cause is that English trucks can only carry half the quantity of foreign trucks. Most Continental trucks run on two bogies and are so long that we can put a portable engine and a threshing machine on one. Their great makers send truck loads and are charged a rate per truck-load.

Foreign Methods 556 Other countries have derived advantage from technical and commercial training, particularly the United States, Germany and Switzerland, whose average mechanics possess a higher grade of training, education and resource than ours. I believe that in this country we want better schooling generally and better technical and scientific training ; foreign languages should be taught by native masters. We want more military discipline and less "play." Tariff Reform alone will not save the situation. We do not find the foreign system of commercial travelling superior to ours.

Trusts Amalgamation is rather foreign to businesses like ours. It has been adopted abroad through a desire to reduce working expenses or establishment charges. A tariff would tend towards more amalgamations in this country. The latter would economise production. Several firms making the same thing would have one traveller and one agency in a foreign city to sell the combined products. The same with printed matter, advertising, &c. So far as a tariff would produce those results it would be an advantage. There are about 16 firms in our business. An amalgamation of the six principal ones would agglomerate practically all the trade of the United Kingdom in engines and threshing machines, making large economies in administration. Amalgamation might possibly raise prices, because instead of there being so many competitors there would be only one firm and there would be no underselling. On the other hand the resultant economy leading to cheaper production would tend to lower prices. If prices were raised new competitors would come into the trade and if prices were too high it would prevent our goods being exported.

Proportions of Cost 557 The proportions of cost vary according to the nature of the manufacture. The establishment charges on the labour as applied to the raw material will vary from 72 per cent. to 97 per cent. upon the total value of the article manufactured. For instance in making big castings on £100 worth of material we might have 72 per cent. to 75 per cent. of labour. Fixed charges amount to a very considerable proportion of our cost of production. Administration charges in other countries are generally on a par with ours. House rents are higher abroad than in Lincoln. Salaries and wages are generally higher here. British workmen earn more wages and work fewer hours than American or Continental workmen.

Patents In France, Germany and Austria the patent laws favour the native inventor against the foreigner, whereas in Great Britain all have practically equal rights. In France and Austria we have to manufacture the article before we can patent it. This is a very great disadvantage because unless you start works you have to make a portion of the component parts in the rough and send them over there to be finished and put together.

Standardisation British trade has suffered in the past through want of standardisation. For example in screw threads on tubes and pipes hardly two makers in this country work to the same gauges.

Decimal System The decimal or metric system is excellent and would facilitate business enormously, but the decimal coinage and weights should be introduced first as being more feasible. The measure would cause a considerable

558 upheaval specially in the engineering trade with our fixtures and gauges, but the introduction of the decimal coinage and then the weights would be a great boon. All Continental countries have adopted the system with great advantage, and the United States and Canada have decimal coinage.

Duties

Our free market is a very great advantage to the foreigner as it helps him to have plenty of work to keep his shops employed. If by taxing such imports as we can produce here you close the British free market you might diminish his competing power very considerably. If you tax materials, &c., which we cannot produce here, instead of benefiting yourself you are doing the reverse, because there is an infinity of imported articles which are not produced here, either because we have not got the raw material or because we are unable to make them. The Rumanian Government proposed to put a duty on all machinery imported. We protested, basing our protest on the ground that England is the principal or largest buyer of the cereals produced in Rumania and therefore it would be an unfair thing to tax British machinery. We put all the weight we could on our protest which would have had greater force if our Government had been in the position to make a bargain by being able to intimate that we might retaliate by a small duty on corn. Next year if there were no harvest and we could not get our corn from America or India we might have to buy more from Rumania and they know very well we must have their corn. My view as to a suggested tariff can only be given when it is decided on what articles or materials it is proposed to levy a duty. If on materials it will be a serious handicap to our trade, but it is possible that some
559 scientific basis could be arrived at as to the articles to be taxed, and I hope that after this Commission has sifted the matter it will be decided on what we ought to put a duty, and what ought to come in free. The effect of a tariff would be disastrous unless tariffs abroad are lowered correspondingly, but it would depend on the amount of the duty and on the articles taxed. A tariff on partly manufactured articles would naturally raise the cost of production and consequently the selling price, or worse still further reduce the profits. England buys articles from America. Ingenious novelties are all practically American. We do not make them here. The United States produce them better or in a cheaper way, within the reach of small pockets, so if you put a duty on such articles they would still be imported. This country would not produce them. The United States have everything within them ; that is where they score. We have the same within the Empire in many cases, but at very great distances from one another. Free interchange between all nations would be a grand idea. If we have Free Trade for the articles we cannot produce in this country and a tariff on things we can manufacture or produce, it would be an advantage to the British manufacturers because that would stimulate makers and, in the case of an imported article that is not made here, it would stimulate the home industry to make it and shut the other article out. The effect of foreign tariffs is that we are getting shut out in Germany, Austria and Hungary, but as these countries manufacture the articles we produce very well themselves, this is the main reason for our being practically shut out. In manufacturing countries a tariff tends to increase the efficiency of local production in proportion to its severity and the importance of local manufacture. A German competitor has an advantage because the German market is closed to us, and both his market and ours are open to him. We cannot get into his market to do a business except by lowering
560 our profits. By sending our goods at a lower figure we practically pay the duty. If we follow the example of other countries and have a protective tariff, the foreign importer would pay the duty. That would be reciprocity. In countries with no manufactures all makers are on equal terms. In that case the consumer pays the tax. Competition keeps the price at a certain level. English engine and threshing machine makers do business in Germany and Austria, and the duty is paid by the makers, not the consumers. In those classes of imported goods which we also manufacture in this country the foreign importer pays the duty. A tax on the timber and other material used in our business which we buy from abroad would be detrimental because there is no home supply to help us against the importer and we must have the stuff for our manufactures. Where we import an article that we cannot produce here the consumer in this country would pay the tariff, but where the foreigner comes into competition with the home manufacturer the producer pays the duty. The possibilities of expanding our home trade under a tariff on imports here are small. The home trade is already in the hands of the English makers. There is no foreign competition in our line. If a great deal more wheat were grown in this country they would want more threshing machines, but with seasons like we had last year (1903) there is no room for it unless more of the country were put under wheat.

Preference

We get a preference in New Zealand, the Cape and Canada. The Canadian preference of 33⅓ per cent. is not sufficient. The high duty 10 per cent. to 15 per cent. shuts us out. The Canadian manufacturer is protected by the duty and the freight rate is so high that we cannot compete. In Canadian factories machinery
561 is produced on the same lines as in the United States. Trade with South Africa has been so dull that we have had only a sprinkling of orders compared with what we had before the war. A high tariff put against British goods by any foreign country is detrimental to us. A preference is a decided benefit. We could not sell oil engines in New Zealand because the Americans paying the same duty as ourselves did the trade, but now we have a preference there will be a chance for our oil engines.

WITNESS No. 258

State of Trade

I am principally interested in iron and steel manufacturing. We make iron and steel plates and sections, and do bridge building, railway wheel and axle making, and general engineering. We do no marine engineering. Our work is almost entirely railway engineering. The tendency for some time has been for railway and constructing companies such as wagon builders to manufacture more of the component parts themselves than they used to. We have had much to do with the electrifying of certain metropolitan lines.

562 On the whole our business has increased in bulk in the last few years, but we are not getting as much for it as we did before. Everything was bad down to September, 1904, when it began to improve for the first time, and prices advanced much within the following three months. The present improvement is bound to continue for 12 months in the steel trade because very nearly all the great makers in this country are fully booked in some articles for 9, 10 and 12 months. Every day we receive quotations from steel makers in the North quoting very high prices and stating that in any case they could not possibly make any delivery for six months. We are working at our full capacity in some departments, but not in others. There is no finality about iron and steel works, we have to go on spending large sums year by year. We have no blast furnaces, as we have just demolished them. We buy our pig iron, but from the pig iron to the finished article we make everything ourselves. Pig iron is worked up into steel or iron plates, bars, and angles, or wheels, tyres, axles, &c. We begin with pig iron at a certain price which is increased when it becomes a steel ingot, and again when the ingot becomes a bar or a plate, and yet again when it is made up into a tyre or an axle.

United States Competition at Home

We find severe competition from the United States in half-manufactured material such as steel blooms and billets. They have been sold and delivered in this country, including freight, at 10s. to 15s. a ton lower than they sell at home. They have been delivered in the Midlands as low as £4 a ton, which is roughly 20 dols., and at the same time the price quoted at Pittsburg was 25 dols.: that is dumping.

Exports

563 Most of our business is export—particularly shafting and wheels and axles. We do not send any to the Continent but a great deal to South America, Argentina, Brazil, Chile, &c., and largely to our Colonies and India; very little to the United States. We cannot get into Germany at all. We export a certain class of wheels and axles to the United States and Canada, but that is a decreasing trade. Notwithstanding our preference Canada gets most of its supplies from the States; the difference in duty is not sufficient. Both Canada and the States are wedded to the chilled cast-iron wheel. It is going out now to a small extent, and new steel wheels are to take the place of the cast-iron wheel, but there is every chance of that trade being still retained by the States.

Exports to Colonies

Our Colonies are much more successful than German or French Colonies, because the latter can only buy their stuff from their own country, whereas our Colonies are able to buy in the cheapest market and so progress. We have no experience of Colonial tariffs because all our sales are f.o.b. in this country. Nearly all our work is done through the Agents-General. We do a great deal of work for the Cape Government; we have just completed some spans for them.

German Competition in India

We have a very large trade with India, but recently the Indian Government has been giving to Germany orders which we think rightly belong to this country. There was a difference of 25 per cent. in the amount of the original tenders for those orders. The lowest English tenderers were asked to amend their prices, which they did and put everything in at cost price. Even then their lowest tender was at least 15 per cent. higher than the foreign one. The foreign production could not be made at the price they put in, but it suited them 564 on the dumping principle to take the business. It is not possible for the Germans who took the order to make the material at the price, but they are aided by the fact that in their own country they can get a much higher price.

If nothing were reckoned in the cost of production for fixed charges they would not make a loss, because fixed charges come to a very large sum if depreciation, maintenance, interest on capital, &c., are included. In Germany as a rule working costs are higher than here. In obtaining this order they practically made a profit, because had they not received it their fixed charges on their works would have gone on just the same. We frequently take orders that apparently are below cost for the sake of covering the standing charges. We have certain standing charges, salaries, &c., which go on whether we have work or not.

Profits

Generally speaking the net profits in recent years are much diminished, but exception may be taken in the case of steel plates and bars. There has been a very great demand for these not only for ship plates but for boiler plates and every sort of steel plate, and the turnover has increased to a very considerable extent during the last six months (November, 1904).

Labour and Wages

Employment has been more uniform for the last few years, but there has been a diminution in wages almost throughout. The price of puddling in 1900 was 11s. 3d. per ton and to-day it is 8s. 6d. For steel melting for open-hearth furnaces the rate in 1900 was 25 per cent. over the standard, and to-day it is 2½ per 565 cent. only. This is not in consequence of improvements in appliances and machinery, but on account of the selling price. It is arrived at by a sliding scale. We are situated in a district where there are many unemployed. Since the introduction of the Workmen's Compensation Act all small employers of labour have for their own protection discharged the men over 50 years of age. These men are good for a certain amount of work, but the insurance companies will not countenance them, and so able-bodied men over 50 are thrown on the Union. In our own works we keep them on, but if a man is subject to fits or any weakness of that sort we arrange with him as to payment of his insurance outside. We take our risk with the other men whom we insure in the ordinary way.

Foreign Methods

We sent our engineer recently on a tour of inspection. He got into a great many places and provided us with much information. He found that in the Belgian and German works the rate of wages is from 30 to 50 per cent. less than here. The current wages for skilled labour in these two countries are from 3 to 4 marks per day, and for the same work here they are 6s. 6d. and 7s. The hours vary in different trades. In the coal pits 12 hours is the minimum abroad. Here eight hours is the maximum. In the works in Belgium from 12 to 14 hours is current, and there is nothing out of that allowed for meal times, they have to eat when they can; whereas in this country in all the engineering trades the hours are 53 a week exclusive of meal time.

566 In Germany they work 12 hours a day. In Belgium much work (such as piling bars of iron and steel, making the piles for the furnaces, &c.) done by men here is done by women. German and Belgian workmen do not do the same amount of work as ours; from an estimate our engineer came to the conclusion that a German or Belgian generally does about 70 per cent. of what an English workman of a similar class would do in the same time. In the best steel works in Germany and some of those in Belgium their methods are ahead of ours. They are much more modern and have taken advantage of all the recent inventions whereas many British works are antiquated and it is only those which have amalgamated and got fresh capital that are bringing themselves up to date. I visited many Sheffield works at the time of the meetings of the Iron and Steel Institute and I saw nothing there equal to some of the new German works, neither in the application of the motors nor in the general machinery. In one German works they were dealing with a steel ingot of 6 tons weight, rolling it into 24 by 7½-inch joists, which is the biggest joist rolled. That was done in four minutes from the time the ingot was put into the roll. There is nothing like that in this country. Capital is doubtless attracted to those works because of the secure market at home. This encourages them to go in for new things whereas our system discourages us because we fear we may lose both interest and capital.

Raw Materials

In our district the supplies of ironstone and limestone have almost disappeared. Previous
to 1870 there were many blast furnaces in the district employing native ironstone blue flats; they
made a very high class of iron, but when other ores were discovered and worked they were com-
567 pletely cut out and all the furnaces were shut down, consequently in this district the only furnaces now
blowing are those that make basic iron from tap cinder. There are one or two places that make cold blast
iron from native ore, but that is a very high-priced iron running about £5 a ton so that there is a very small
sale for it. We use Swedish iron for several purposes. The coal in our district is greatly diminished. It is
nearly all drowned out. The mines in the old days were so easily got at and the coal lay so near the surface,
being 30 feet thick, that it caused great pockets or "swags" which were left, and the surface water drained
into them. All the mines are consequently waterlogged. The Mines Drainage Commission is trying to cope
with this difficulty. They are trying to pump out the mines, but without much success. The expense is
enormous. Nearly half a million has been spent without much to show for it.

Freight Rates

Railway and canal rates affect us very seriously in comparison with the rates and facilities abroad. In Germany they can convey goods for export from the neighbourhood of Düsseldorf to Antwerp and Rotterdam by water at from 5d. to 7d. per ton, a distance of 180 miles. The reason they are able to do so is that they employ large 400-ton barges to bring in ore for the steel furnaces. These barges take the iron as ballast return freight. We have nothing that can compare with that. We are very much handicapped as the railways here combine and fix the rates. If one asks for a special rate they cannot give it without consulting the other companies, and the answer is generally "No." We had a large contract the other day which involved the export of 4,000 tons of bridge work, and asked for a special rate. As it would be taken in trainloads we thought some advantage might be given, but the answer was in the negative.

568

Proportion of Costs

Wages form about 30 per cent. in the production of articles all round in proportion to the total selling value. Fixed charges in addition to that would be nearly half, that is about 15 per cent.

Trusts

There is more combination amongst Continental firms than formerly. In Germany there is combination for almost everything. Recently when in Germany I found the prices the Russian State Railway was paying for wheels and axles were 25 per cent. more than we could get for similar stock in our own country.

Duties

We have been quoted 40s. for imported steel castings, a partly manufactured article which we use.
The lowest English price is 49s. No reasonable tariff would make any difference in that case. It is partly
by dumping and partly because in Belgian and German works they can produce much cheaper. If you put on
a sufficient duty to keep out foreign material it would raise wages and the price of material in this country.
If you put on a duty that would not exclude the foreign goods, but would bring them in on comparatively
more level terms with our own, it is difficult to say if it would benefit us; it would depend on the class of goods.
There would have to be a schedule according to what is being manufactured; but if we were to do that in
one direction it would probably drive the Germans, Americans, &c., to invade other markets of ours which are
not so protected, such as South America. Such policy would not tend to make us produce cheaper, the
workmen would want more. In the iron trade we ascertain the selling value of our goods every two months
and wages go up and down on a sliding scale on these figures which could not be kept exclusively in the hands
569 of the manufacturer, they must become common knowledge. As wages rise in that way prices always advance
in a greater ratio. If such a policy were adopted, prices of rails might jump (if wages rose correspondingly)
from the present standard of £5 to £6 or £7. Such a price in our Colonies would completely strangle our
trade there. The increase of our production, assuming we could do more business, would mean a decrease
of cost all round by reducing our fixed charges if we could increase the output without increasing our capital.
In our present business we could do more work (without materially increasing our administration charges)
to the extent of 10 per cent. and possibly in some departments to the extent of 20 or even 50 per cent., but
not generally. We should not require a bigger staff to get out a larger amount of work. If wages rose 10 per
cent. and we were enabled to increase our production very largely, one thing would counterbalance the other.
The object of a tariff would be to keep out unfair dumping competition and allow us to compete for and
execute many of the orders we now lose.

Preference

Colonial preference would largely tend towards things being taken from the mother country instead of from other countries as long as the prices were kept within limits. There is a natural tendency on the part of anyone who has anything to sell to get as much as possible, and if prices run riot the Colonies would not stand it. Internal competition would not be enough to keep down prices, the tendency to-day being to form amalgamations, combinations and rings which take good care to maintain the price. Other difficulties which counteract the advantage of preferential tariffs are the shipping ring and the cost of carriage on the other side.

WITNESS No. 259 570

MR. J. F. ROBINSON

(North British Locomotive Company, Ltd., Glasgow; Amalgamation of the Hyde Park Locomotive Works, Glasgow Locomotive Works, and Atlas Locomotive Works).

Two of our works are close together separated only by the railway, and the third is on the other side of the river. The three works amalgamated early in 1903. Our business is railway locomotive manufacturing.

State of Trade Trade has been quite satisfactory until about a year since when it began to fall off. That is not chiefly due to foreign competition, although the Germans have taken orders for India which would have otherwise come here. The chief cause is bad trade—the absence of demand. The fluctuations in our trade are largely due to the changes in the locality of the demand. In the Atlas works, of which I was managing director before the amalgamation took place, 90 per cent. of the engines turned out in 1902 were for the home lines. In the following year 10 per cent. only were for the home lines. From the beginning of 1895 to the end of 1902 there was a very considerable increase in the volume of our trade. The demand for 571 locomotives for the home lines and for the Colonies and India was very large during the whole of those years with the result that the whole of our three works which at that time were separate works increased their output to meet the demand, but since the beginning of 1903 there has been and is a considerable falling off in the demand for locomotives. We have had some foreign competition in the United Kingdom but only in exceptional times. In 1898 or 1899 orders were given to the United States in four or five cases, and one small order went to Belgium for engines for this country. This was shortly after the engineers' strike in 1897, when some of the locomotive shops were closed for five to seven months, during the whole of which time orders were being carried out very slowly and the railways were getting short of engines. British railways build nearly the whole of their own engines now. They only buy from us when there is a sudden demand which they cannot fill themselves, and as they are not likely to alter that policy, there is no chance of the home trade increasing. Railway companies attach great importance to possible improvements in locomotives. Some of them, particularly the London and North Western and North Eastern Railways, have spent very large sums in improving locomotives, successfully to some extent. In other cases we find that a certain engine, which has been thought a great deal of at the time it was produced, is gradually being superseded. On the North Western the Webb compound engine, introduced about 1881, was considered to be a great advance on anything done before. These compound engines have been developed from time to time and increased in size, weight, &c., and now they are being superseded by simple engines of very ordinary construction. The great French engines, imported here for use on the Great Western, are very good engines for the class of work they have to do. They would not be much more costly to make in France as compared with a similar engine made at our works. The labour is not as 572 efficient in France as it is here, but they work longer hours and get lower wages.

Export With regard to the Colonies and foreign countries trade varies enormously. Many years ago we did a large trade with all Continental countries, but as they gradually began to manufacture their own locomotives we lost the trade. We still trade with Spain to some extent, and a little with Portugal, but the principal Continental countries we do not supply now. France and Germany make their own locomotives and Italy also to some extent. In Italy the German competition is very severe for any engines wanted.

Germany Germany has not imported an engine from this country for many years. The duty there is over 30 per cent. Some years ago we sent some engines to Germany under special circumstances, but Germany is now a closed country to us altogether. If the Germans had to compete with us on all fours they would be squeezed out, but they get very good prices indeed for their own products in their own country owing to the ring or kartell, and if they have not enough home orders to fill up their works to their complete capacity they compete with us abroad and take orders at prices which cannot pay. They dump in India, Egypt, Italy and the Argentine Republic. The position of the Germans is immensely strengthened by the fact that the railways belong to the State. The State by way of assisting the manufacturers does not encourage the railways to build their own engines but prefers to keep the manufacturers going. Even if they had free trade the Germans would probably not allow engines to be bought outside. 573

Japan With Japan we do a trade which varies considerably, depending largely upon the severity of the competition by Germany—our great rival there. If they happen to be full of work we get the orders.

United States In the United States we have no opportunity at all. If the American makers had to make to our specifications they certainly could not compete with us, but if they may supply their own article which is much cheaper than ours and we have to work to a proper specification, of course we cannot compete with them. If we work on American lines and build a cheap article, in all probability they could beat us still, but if they work on our lines they cannot compete with us. The British locomotive is a much more complicated, much better designed and better built engine than the American. The American engine is a cheap article as regards materials, design and workmanship. Our men, trained to a high point of excellence of work, cannot compete with men trained to do cheap work and do it quickly. Americans do not believe in our system of repairing by which we have engines running for 30 to 40 years.

South America In South America British makers supply practically the whole of the engines for the British Companies, such as the Rosario, the Great Southern, &c. They use a good many engines but it is a very fluctuating business.

574 **India** British makers supply most of the engines in India, although a few are built in the railway shops in India. Recently they have given an order to Germany, which is quite a new departure. The Indian railways had been keeping their orders back, and came into the market with a rush and could not get their wants supplied here; they therefore gave orders first to the United States and afterwards to Germany. Germany got the order for India because of the price and time of delivery. At that time the locomotive shops in this country could not undertake delivery except over a very long period and the result was that prices were high. The Germans had not much to do, they wanted work badly and were able to give early delivery and take orders at a lower price. At the same price we should get the orders in future: India would favour us to a certain extent. The Government lines have never given any orders to Germany, it was only the guaranteed railway companies that did so. The first 40 engines ought to have been delivered in 1902, but were carried forward to the next year. They got some larger orders afterwards. The first 40 engines were built in Hannover and they had a great deal of trouble due to their being called upon to produce a class of article and style of workmanship they were not accustomed to. When they submitted it to the inspector who had been inspecting our work he said theirs did not comply with the specification, and a large number of parts had to be scrapped. The later engines built by Germany for India were considerably improved because the builders found that otherwise they would not get the engines accepted. If they adopt a higher class of workmanship and pay larger wages they will find it more expensive to build the engines, but as long as the kartell goes on they will continue to compete with us in neutral markets, and successfully in certain cases.

575 **Canada** Railway companies in Canada have manufactured engines for themselves for many years past, and it is only when they are building for capital account that they buy outside; ordinary replacements are built in their own shops, both the Canadian Pacific and the Grand Trunk having very fine shops. In Canada they had works at Kingston which led a precarious existence for many years and are now sold. They had some works in Montreal which were completed a few months ago, and have since been sold to the American Locomotive Company, so that the Americans have got a footing there and look forward to being able to supply the Canadian market from Montreal. Notwithstanding this, if the duty were taken off or reduced we might compete against the manufacturers there. Montreal is not an ideal place in which to build locomotives; it has a very severe climate in winter and a very hot climate in the summer, which is much against the output of the men. They must have a much larger area covered up than we have. Unless it is very wet indeed a lot of our men work all the year in the open on certain jobs. If the duty in Canada against us disappeared altogether the Canadians would not compete. The labour party is not quite so strong in Canada as in Australia, but it is getting stronger every day. In February 1903 we had two considerable orders in hand for the Canadian Pacific Railway, and they asked us about building 20 compound mixed engines (for heavy passenger or fast goods traffic), which had to be delivered out there in October 1903 We were nearly full up with orders for the same Company, the engine was a new engine to us, and we had no patterns and no drawings. They went to Germany, got an offer from the Saxony Company and placed
576 the order for 20 engines with them. They came to us three months later, and asked us again to quote for 20 of the same engines to be delivered later on. We accepted the order, and our first engine was steamed on the day the first German engine was delivered in Montreal. Our last engine was delivered three months before their last engine. The order went to Germany on account of time, not price. They undertook a delivery they were not able to fulfil. The penalties in that contract are not settled yet. Experience in Canada will not encourage German trade there. Canada discriminates against Germany, and their manufactures pay over 33 per cent. more duty than ours.

Australia We supply engines to New South Wales and Western Australia. Victoria and South Australia build their own engines. In Queensland and New South Wales they sometimes build their engines. They pay a great deal more for what they make themselves. If the figures which are published in the Australian papers are correct Australia is hopelessly out of competition with us in the locomotive building trade. It is not a question of scores but hundreds of pounds.

South Africa There was a large demand in South Africa after the war and a great proportion of the orders came to our works. That is of course now decreasing but as the country develops they will require many more engines. Cape Colony has bought a few engines from the United States, but since the conclusion of the war nearly all the Cape engines and all those for Natal, Orange Colony and Transvaal have been bought in this country. They have built no engines in South Africa.

577 **Profits** The net profits in relation to turnover increased very considerably during the years in which the trade was good, but they are falling off to a great extent and will fall off further unless the demand revives. It is a question of price. In good times when you can get a good price your profit in relation to turnover is far better than in bad times.

Labour We employ about 8,000 men and boys. Employment has been very good but is now falling off and men are gradually being paid off. Our factories have not been fully employed during recent unfavourable years. In our business we always try to make as large a turnover as we can, even if prices are not so good, because the larger the turnover the better the men work, and the better results we get out of them, and therefore we keep going at full capacity as long as we can get orders at prices to pay for themselves.

Wages The rate of earnings is gradually increasing. We have had few if any simultaneous advances all round. In the case of one or two classes of men we had to give an advance of 2s. a week some few years ago.

Raw Materials Our principal materials are steel, iron, copper and copper alloys. The copper and iron ores come from abroad, but we buy our supplies manufactured here. The iron and steel are cheaper in Germany, and probably also in the United States. In steel axles and tyres, &c., the quality usually required here by locomotive engineers is very good and therefore expensive, and probably we pay far more for such articles

here than if made in the United States or Germany. The class of steel imported from Germany is not used 578
in our manufacture, but it has the effect of keeping the general prices of steel down. A quality of plates similar to those manufactured by the people who make our boiler plates in this country comes from Germany. If they cannot get sufficient orders for cheap stuff because of such German competition they must compete for what orders they can get amongst themselves, and the result is that the price of steel plates, including boiler plates, is kept down by the competition in this country, which is accentuated by the German dumping. Dumping has not been of any other advantage to us.

Transport

On much of our work, if being done for export, as we are close to the Clyde we do not pay heavy railway rates, but the rates for materials coming from Yorkshire where we get a large quantity of our steel and iron are high as compared with what they would be for a similar distance in other countries. In sending to Canada we have the sea passage to pay. That is a considerable amount. In the United States the locomotive firms are some distance from the Canadian frontier, and get a long land carriage, which however is fairly cheap. The United States railways do not allow the engine to steam over the line, they haul it. When we deliver to English railways the engines are never allowed to be taken away in steam from the works. The companies refuse on the ground that an engine must not steam over their road unless they have inspected it. On Continental lines also such an engine is hauled by another engine as part of the train.

Technical Education

Our fitters, turners and boiler makers would not be improved by having technical or scientific training.
The work in our places is so divided that the same man does the same job the whole year round, and by 579
specialising in that way we get a better result than by having a good all-round man. There is not much new to learn about a locomotive. It has been going on since the days of George Stephenson. It has advanced in size and other respects, but it has got to about the end of its tether as regards improvement, and in our work as contractors there is not much scope for men of an inventive turn of mind. From my point of view as a locomotive contractor it would not help us very much to start such a thing as an engineering tripos at Cambridge or some similar institution in London; what you might do on railways is different. The design is usually supplied to us. If we get an order for a locomotive without any specifications we should probably make use of some engineer's specification improved by ourselves according to our experience. If the engine were a new engine and had not been built before, we should take the nearest thing we had to it, and work the parts in as far as we could, only making new parts where necessary. The United States railway engineers have become better educated in the line they have developed, as their engineers have certain ideas of their own which they insist on having carried out. As long as they were men of no education they were very much in the hands of the makers. Now the position has been to some extent altered.

Trusts

In Germany in our business they have a combination which is recognised by the State railways who
tolerate this ring so long as they do not put their prices up abnormally. In the United States there was
a large amalgamation in the locomotive trade, which included almost all the makers but Baldwins, the
largest firm in the trade. This American Locomotive Company has not altogether succeeded, although
they are protected by a duty of about 35 per cent. The first report was not very satisfactory. A 580
large sum went to betterment and not much to dividend; they would probably not have attempted the amalgamation unless they had a strong protective tariff. They had the trade in their own country entirely in their own hands. The only amalgamation of any importance in the home locomotive trade was that of our own three companies, which took place in 1903, because it appeared to us that we could economise in production and expenses generally.

Proportions of cost

The proportions of the different elements of cost in our business vary very much according to the class of engines we are building and the specification we are working to. For productive wages we require 25 to 30 per cent. of the cost, materials 55 to 60 per cent., and fixed charges 15 to 20 per cent.

Costing

In a locomotive business like ours where the class of articles produced is constantly being altered there is little improvement to be made on the system of prime cost getting which we have in our works. It is not like perpetually producing the same thing where you can get the cost down to the greatest nicety and the smallest details.

Standardisation

British engineers have not made any advance in the direction of standardisation. Each railway
is a world of its own as far as making component parts to a similar pattern is concerned. It is practically
impossible to make parts for stock, we never know what the next orders are going to be. We have tried
standards for India to some extent, but the system will not have a very long life, the tendency being to 581
improve the locomotives by making them more powerful and heavier. I am a member of the Locomotive Sub-Committee of the Standards Commission, and at the time we started on this particular job we had certain regulations with regard to the weight, and especially the weight per axle admissible on the broad gauge and metre-gauge lines. Before we got through with our standards these figures had been altered on certain lines and our standardising was thrown in the basket again to a large extent. Even when the Standards Commission engine was adopted on certain lines in India there were certain excrescences that had to be added to it to please the various locomotive superintendents. We tender for engines frequently according to the specification of the engineer. The Baldwin Locomotive Works used only to make engines to their own specification, but they have been forced into abandoning that to some extent. Two or three years ago some engineering journal argued that the cutting of prices by Americans was facilitated by standardisation of pattern. That arose almost entirely from certain orders given from India to American makers. The Indian specifications to which we work are extremely rigid, but some orders were given to American builders without specifications being particularly insisted on as regards design or material. The conditions were unusual but they wanted engines in a tremendous hurry and they had to get what they could. British manufacturers suffer in having to follow specifications of the various engineers if the other makers competing with them are not obliged to comply with those conditions. The engineers employed by the American railway companies have been generally inferior to those here because the manufacture

582 of locomotive engines for a great number of years was not undertaken by the railway companies. Their engines were bought to the maker's specifications and to the maker's drawings so that they did not require trained men for design engines. A certain number of men who got into the position of locomotive superintendents developed ideas of their own, and as railways grew in importance and wealth they would not any longer be content with buying the engines as made by the Baldwin or the Schenectady or other makers. The first railway company to make the change was the Pennsylvania, who have works of their own at Altona, and therefore they were able not only to design their engines but build them, and if they ordered engines, unless they were in a great hurry, they used to insist upon having their own specification and drawings complied with by other makers. Other railways have since followed the Pennsylvania Company.

Duties The adoption of an Empire tariff here might assist us in our production generally, but a tariff applying exclusively to Great Britain would not alter the condition of things very much. An Imperial tariff would block out to some extent the bounty-fed competitions of Germany and the United States. The obstructive effect of foreign tariffs is that we are excluded practically from all Continental countries where engines are built, and from the United States. We are excluded from Germany, Russia and France except under special circumstances Whether this country had a protective tariff or not the tariff policy of other countries would have tended to the success of our competitors. If the Germans had not this country and its colonies and dependencies in which to dump their surplus products they would have thought twice about developing their industries to the extent they have done. Securing the home markets at a high price enables our com-583 petitors to compete at or below cost in a neutral market, and so keep the works going and make their profits out of the home orders. The tariffs of Germany and the United States enable them to get orders in their own countries at high prices. It is better to dispose of 75 per cent. of your output at high prices and the remaining 25 per cent. at any price that gives you more than the cost of materials and wages, than have your works going three-quarter time.

Preference Through the preferential tariff in Canada we got some orders in 1902–3 for the Canadian Pacific Railway Company. All the orders previous to that for many years had been given to the United States. The duty is 35 per cent. generally and we get a preference of one-third. The price of our locomotive in Canada is £3,000, including the duty which would be £1,000 to a United States maker, giving an advantage of over £300 in favour of the British manufacturer against the foreigner, or about 12½ per cent. on the price of the locomotive without the duty. A preferential tariff given to the British manufacturers of locomotives throughout the whole of the Empire would be an advantage to the British manufacturer of locomotives. A preferential tariff sufficient to give us an effective preference in the Colonies, *i.e.*, enough to compete with their own manufacturers as well as outsiders, would help us a good deal. In New South Wales there is a strong, well organised labour party, who practically hold the control of the policy of the Government. They have got wages up to very high rates, and they are determined to develop all the manufactures they can in their own country irrespective of whether the thing can be produced outside and sold to them cheaper than they can make it. A preference 584 to the Colonies for the supply of whatever they produce is of no use to us as long as they take our preference but refuse to buy our locomotives. Presuming an Imperial preference could be arranged suitable to all the countries concerned, the natural tendency would be to develop trade in the British Isles by taking the trade that at present goes to Germany and the United States. The more we produce the cheaper we can produce it, and the more we enlarge the area of our markets the more regular the supply of orders tends to become. If we could enlarge the area to include Canada and the whole of Australia as well as India we should have a much better chance of having a regular flow of trade. It would also very much benefit the workman for he suffers like ourselves. In certain years he has more work than is good for him ; he works overtime nearly every night, and the next few years he cannot get full employment. This tends to drive up wages and increase the cost of production, whereas if we had a regular flow by having this market to ourselves wages would become more regular and the workmen would be better off.

WITNESS No. 260

585

MR. WILLIAM SHACKLEFORD

(Managing Director of a Railway Carriage and Wagon Company).

State of Trade Since the close of the South African war the rolling-stock trade has fallen off considerably until recently, when there has been a very good demand from South America—the Argentine Republic particularly. There was a very slack time after the South African war, but during the war we had a great deal of work from the Central South African railways and the Cape.

Profits Net profits in relation to turnover have decidedly diminished, which I ascribe both to local competition and competition from imports. There was one contract for a very large number of carriages for one of the London Electric Railways. Some 280 cars were imported from France, made by six or seven different firms there, and the portion of the order which we got was at a very poor price indeed.* Our Board thought it best not to be left entirely out of it, and to show that we could do some work for them we took a small order at a very unremunerative price for the car without the electric equipment. The electric equipment was got from the Westinghouse Company, but a great deal of the 586 material really came from abroad. We used to make tramcars, but we are not doing so now as the competition from abroad keeps the prices down.

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* Since this evidence was given, some 700 to 800 cars, representing a total value not far short of one million pounds, have been placed with Continental and American manufacturers.

Wheels and Axles

On a very large contract for the Indian Government I came down to an utterly unremunerative price for the sake of holding the trade, but found our German competitors were too many for us. The Indian Government have been buying rolling-stock and wheels and axles on the Continent. Quite recently the East Indian Railway placed a very large order for wheels and axles with Bochum and Krupp, and the price quoted by those two firms was said to have been 25 per cent. below the lowest English price. I can only account for it in that they have the monopoly of their home trade. They get good prices in their own country, and it suits them, in order to keep their works going, to take foreign orders at a loss. Assume £100,000 to be the output of a place, if you get orders for 75 per cent. of the output at prices which would just pay your total annual expenses and give you a small profit, you can take orders for the remaining 25 per cent. at the same prices and make a good profit on the whole £100,000. The rolling-stock makers on the Continent know almost exactly what orders they are going to get during the year (I have been told that these are practically apportioned at the commencement of the year, so many to each works), and they know what they have to depend upon at good prices. If that does not suffice to keep their works in full swing they will take orders at low prices just for the sake of filling up. The general expenses are thus paid out of the proportion of remunerative work they are getting in their own country, so that they can take 587 their outside orders at anything above the actual cost of labour and material, and the average result on the whole output comes out right. We cannot do the same thing here, because we are always in competition, while they are not so to the same extent. If we had our home market secure all our manufacturers would be assured of a profitable trade for a large proportion, 75 per cent., of their output.

Foreign Competition

Generally the cost of production is very much lower on the Continent. The great competition from the Continent is the result of Continental manufacturers being protected and having their own market, for over and over again we have had contracts taken out of our hands when we have had to meet with Continental competition. We have been constantly in competition with Continental firms for rolling-stock abroad. We are not so often brought into competition at home, but when we are, we are made to feel it, there is no doubt about that. I have many times seen contracts taken abroad at prices which we could not possibly look at.

Employment

As regards continuity of employment, of late years our trade has been very fluctuating; sometimes we are very busy, at other times very slack. Trade is not as a rule good all round at the same time. When a good demand exists in one trade perhaps there is a small one in some other trade, and the men move about a great deal. The class of men we employ are the same as those who are largely employed by the railway companies, and it more often than not happens that the railway companies may be doing very little work at the time that we are busy, and then we get numbers of skilled men from the different railway 588 shops.

Wages

The rate of wages has tended rather upwards, but not much. There has not been any considerable alteration during the last few years; there are regular trades union rates which obtain all over the country, but compared with ten or twenty years ago, the rate is very much higher and the hours shorter. Our competitors have their greatest advantage in the labour. I have no statistics, but do not hesitate to say that their rates of wages are very considerably lower. It is mostly piece work, but based on a day-work rate.

Materials

The principal materials wholly or partly manufactured we use are bar iron and steel in sections and plates, and a very large quantity of timber. We employ steel castings largely in our business, and get a considerable portion from this country, mostly from Sheffield, but we also import from Belgium and other places. When we want something very cheap we are obliged to buy the stuff from Belgium. The articles we import are subject to the same tests as the home-made, because our contracts are for rolling-stock made of such and such materials, and the tests are specified. Our foreign competitors get very cheap steel, but there is not much difference in timber.

Technical Education

The technical and scientific argument has been carried a great deal too far. Technical training is not required for a workman, but a skilled workman is required, a man who can work at a machine, a lathe, 589 shaping, or wood-working machine. No amount of technical training will make him more valuable. Scientific technical training is needed for the leading men, the foremen, and we are very well off for these in comparison with foreign countries. Under the present system of working almost everything is specialised: a man works at one job year in and year out and if he is good at that and takes care to turn everything in good condition, that is all we require. The days have gone by when a workman was expected to do a job from beginning to end.

Duties

I have not the slightest doubt that a tariff would be for the general good of the country, and especially for the working classes. We want protection, not particularly for our own business, but for the country generally. If the policy in view developed our Colonies to a great extent it would be for the benefit of everybody; labour would be attracted to the Colonies, and we should not hear so much of the unemployed as we do at present.

Preference

If we are going to have preferential trade with different portions of the United Empire, we should require a preference in the Colonies to enable us to hold our own against foreign manufacturers. The Australian Colonies by no means deal exclusively with the old country: they rather show a preference for the foreigner; I do not know why, but they do.

State of Trade Our business is locomotive building. Ours is not a large works, but we turn out 60 to 70 locomotives per annum. There are fewer locomotive works in this country now than there were 20 or 30 years ago. Some have grown larger, but many are almost extinct. The capacity of British works for turning out locomotives is 1,000 to 1,500 engines per year, according to the type. Business in the engineering trade is going from bad to worse. Net profits have been falling off during the past three years in relation to the turnover of the trade. Owing to their protection, lower wages and longer hours, we find it impossible to compete with Continental countries, and we have quite lost our continental trade. There is not much importation of locomotives from the Continent to England, but recently there has been much into the Colonies and India. During the past five years orders for locomotives to the extent of £1,132,752 passed to American and Continental firms, of which we had a right to expect a large share. We competed but could not do it at the same price. In Australia the labour party gives a preference to Australian manufactures at a much higher cost. We have not sent anything to New Zealand for many years. They have been 591 ordering from America very largely lately. We have had a share of the orders from South Africa for the extension of the railways since the end of the war. That demand has fallen off, probably owing to want of funds. The orders for locomotives for South Africa have not gone very largely to foreign countries recently. Natal and the Cape buy in England, but some years ago the Cape ordered a few locomotives from America.

American Locomotives The American locomotive is not equal to the English locomotive. It is an exploded idea that the former adapts itself better to a bad road. We can build just the same types, and we have built engines exactly similar to those built by Americans, and can again do so if they are wanted. They have been sold very much cheaper than ours, but time will prove that they are more costly in the long run. In New Zealand these engines were first ordered from United States of America about five years ago. That is time enough for them to test their wearing capabilities. A British locomotive will last 30 years. The difference in price between an English and an American locomotive is generally more than 10 per cent., but it depends entirely on the specification to which they are built; there is a vast difference in material and everything else. The American locomotive "taken off the shelf," built to their standards, patterns, and everything they have in hand, would be 15 or 20 per cent. less in cost than ours built to British specification.

Employment The amount and continuity of employment are both falling off. We have been discharging men for some time, and all round the district there are a number of men out of work. Some of our discharged men are employed on the railway and other industries in the district. Many have gone to Canada, and many 592 to Africa on the railways. Ours is all railway work, and our hands are nearly all skilled. Our men are working full time on the average, but we have reduced the hands.

Wages Wages have been gradually going up, partly owing to the trade unions. There have been several movements with a view to bringing about a reduction, but without result. Ours is almost entirely a trade union shop. Wages have not risen with us more than they have done throughout the country. In the Manchester district wages have risen, and there have been no reductions in the last few years, whereas on the East Coast and in other districts, there have been slight reductions, but it has not got to that acute stage yet with us. Our wages are paid almost entirely by piece-work.

Causes of Change The change is chiefly attributable to foreign tariffs, foreign developments and competition. There has also been a greatly reduced demand from the home railways. In former years that formed a very large part of our trade. The railways are now making a great deal in their own shops and doing their own repairs.

Raw Materials We use nothing but British materials. We use copper in the form of plates, &c.—all manufactured in England.

Foreign Advantages Foreign competitors have better facilities all round than British firms. They get higher prices at home, and are able to launch out in much bigger directions and with greater confidence, and in consequence are able to dump their surplus stuff on our markets at much lower prices. Materials are cheaper in Germany; 593 they work longer hours and at lower wages, and the men turn out more work in the time than ours. In order to secure foreign orders, steel makers and other manufacturers help German manufacturers. They all work together, anything to get into our markets and to capture our trade. In Germany the railways greatly assist the manufacturers, who also get special rates by steamers to the various ports. Their canal rates are much lower than ours. Our canals, of which we have several near us, are of very little use to us. The transport rates bear more heavily on our business than on the foreigners'.

Technical Education For our trade the technical and scientific training of the foreigners has not given them much advantage over us. We are as much advanced as they are. Numbers of our old hands are now working in American shops, and some of the leading men in Baldwin's shop come from British firms. The rank and file of our workmen have not the "go" about them of the American. They have equal brain power and are equally well developed, but there is not quite the same opportunity here as in America. A considerable proportion of the American workmen are of British extraction. The leading men in the American locomotive shops come from the locomotive builders in Britain. Their best men, their leading men, are Britishers, but the moment they get over there, they seem to get full of energy and push and drive; whether it is the climate or not I do not know. I do not think Americans have any more brain power or technical knowledge than we have.

Trusts 594

If the tariff were taken off in the United States their combines would fall to pieces. The amalgamations there have been formed solely for the purpose of keeping up prices. There is only one I know of in our own business in England, and that has been formed with a view to economy. If we had an Imperial tariff on imported locomotives, that would assist in preventing trusts, &c., being introduced into this country.

Proportions of Cost

We reckon roughly the cost of labour about 40 per cent., and material 60 per cent., but a great deal of the material we get has already had considerable work done on it, such as forgings, tyres and axles, steel and copper plates, steel castings, tubes, &c., which are partly finished.

Standardisation

We do not, in our business, keep standard plans of locomotives, they are always being improved. The order is mostly given to us on the engineer's specification. There is a tendency to substitute a standardised procedure. Standards have been drawn up for India, and we hope it is the beginning of a larger system of standardisation throughout other countries. It would be a great help to our foreign business within the Empire, not so much for the purpose of being able to supply parts at once as from the fact of knowing exactly what to expect. It would help us very much in deliveries. We should never go so far as to actually keep locomotives in stock, even if we had a wide system of standardisation. We should keep parts, but the great point is we could have machines specially adapted for finishing parts automatically, and that is half the battle. It is the power of delivering in a given short time through working to their own standards that often gets a firm the order.

Duties 595

Our workmen have not had an opportunity of expressing themselves in any direct way yet, but on the whole they are opposed to anything like protection. They follow the directions of their leaders on political grounds, and the "dear loaf" idea is carefully instilled into them. On the whole the workmen are open to reason, and the balance would be in favour of protection, taking the whole of the electorate, because a large number are not trades unionists. It is impossible to understand the trades union leaders taking such a firm stand, considering the question of continuity of employment. If you talk to the men individually they are in favour of protection. A tariff would not assist us in the least unless it were Imperial, then undoubtedly it would help us in India and the Colonies.

Preference

The present preferential allowances help our trade in the Colonies. The 10 per cent. in the Cape has been a great assistance; but it is not enough to prevent the Germans placing themselves very nearly on a level with us by cheap labour, &c., in spite of the 10 per cent. preference.

WITNESS No. 262 596

Motor Cars

MR. WILLIAM ALEXANDER SMITH

(Chairman of the Hozier Engineering Co., Ltd., Glasgow; Motor Car and Carriage Manufacturers).

State of trade

The state of trade in the Glasgow district as regards the motor-car industry is excellent. The net profit of our trade is a constantly increasing quantity, and the trade has also increased largely in value. Thanks to free imports, we are in a position to put motor cars on the market at much better value than is done in any protected country. The earnings of our workpeople are very substantial, and probably have increased rather than diminished.

Any alteration in the fiscal arrangements of the country would be exceedingly detrimental to this trade. Perhaps it might be well that I should illustrate my meaning by a very brief reference to the development of the automobile industry in this country.

Legal impediments to development

Through the wisdom of our legislators a very few years ago you could not drive a car without having
a man with a red flag walking before it. Then the House of Commons made it legal to drive at 11¾ but not
at 12¼ miles an hour. Then came a further alteration; you could drive 19¾ miles an hour without breaking 597
the law, but not 20¼. In short, everything was done to obstruct the industry until about five or six years
ago. Then it began to develop.

Progress in France

By this time France had got a great hold upon the industry, owing to the enlightened policy of her Government in giving facilities by which they were enabled to develop on lines which we in this country were absolutely precluded from adopting. The result of this was that the French made great strides in the industry. About five years ago I established the Company for which I am speaking to-day. The results have been exceedingly gratifying to me and to my shareholders. The figures show an enormous increase as compared with the average increase of the French during the same five years. Granted no restrictive legislation takes place, then within four or five years we shall be at the top of the industry, and there will be hardly a French or German car imported into this country; of that I am sure. There is nothing more misleading than statistics, for you can twist them any way you like. Still, the hard facts are that while France has increased in the last two years about twofold on the average we have increased something like four to five fold. France, having got to the front, had a very much larger business, whereas we had to commence right from the bottom, and so her doubling her business meant a much larger aggregate than our quadrupling ours. The figures in France as regards production are 99,000,000 frs. two years ago and 176,000,000 frs. to-day, which is not quite double.

Tools and machinery

598 The general increase of trade in this country is due to the fact that we have been in a position to do one of two things always. We have either been able to give an equally good article at less money, owing to Free Trade, or to give a better article at the same money. In order to enable us to give the best article we have searched the world round for the best machinery with which to make this particular article. Thus we have from America probably the best automatic lathes in the world. We get them in free of duty; in France they have to pay about 40 per cent. on them; in Germany they have not to pay such a large duty, but are at a disadvantage as compared with us. We have English and Scotch lathes; Lang, near Paisley, makes an excellent lathe, but we have no machine tools equal to those we can obtain from America. I have no doubt they could make the machine tools in Scotland if they would pull themselves together, and better than the American. In gear cutting we found that the Americans were not as good as others; we went to Ludwig, of Berlin, and bought the best and most accurate gear-cutting machinery that we could find. We got it in free, which neither France nor America could have done. Then we bought other machinery from Belgium, and from some of our own makers, such as bevel-gear-cutting machines from Smith and Coventry, of Manchester. No better could be found, though it is not equal to some we get elsewhere for different classes of work. Then in regard to cylinder boring we found that neither America, Germany, Belgium nor Britain could supply as good a machine as France. So that we have in our works English, French, German, Belgian, Scotch and American machinery, all the best that money can buy and all brought in free, a position that no other manufacturing nation except ourselves can occupy. The result is that we are able to produce
599 the same article at a great deal less money, or a very much better article at the same money. We have between £50,000 and £60,000 worth of machinery, probably £30,000 of which is foreign. Our capital expenditure, if we had had to pay a 10 per cent. import duty upon the cost, would have been increased by £3,000. That is one of the items. Of course £3,000 is not a very large sum of money; it just touches the fringe of the question. But I go upon this ground: If the selling price of a yard of cloth is 10½d., and you can make it at 10¼d., and my cost is 10¾d. or 10⅝d., you will end by being a millionaire and I shall go through the bankruptcy court.

French castings and " parts "

The French can manufacture cylinders better than we can in Free Trade England, because they have had an opportunity of developing that particular branch of industry in a way that we have not, and because the education of the French in regard to metallurgy is not only ahead of Germany and ourselves, but of any other country in the world. The castings we get from France are remarkable for accuracy. I have seen nothing like them in Belgium, Germany, America, or England. We are making cylinders to compete with the French, but our castings are not as good as theirs yet. I have never seen any castings anywhere as good as the French, but we hope to get them. As the industry has more largely developed in France than in this country, a great many of the subsidiary articles which are necessary in order to make good automobiles have received more attention there. I refer to such things as carburetters, lubricators and springs, even carriage springs, an article which we used to pride ourselves upon as being in the very front rank of makers. All these things are made better in France, and we get them in free, whilst in France the same maker will
600 naturally charge his neighbour a higher price than he charges us because he is protected to that extent. Whenever a car built of these articles goes outside France—granted always that the French and the British makers have to pay the same duty, as in Spain for instance—we are naturally in a better position to get that trade. The result has been that British makers have been compelled to pull themselves together and are gradually discarding these particular French articles to which I have referred, and we are obtaining in this country what we have been compelled hitherto to obtain in France. Had this country been protected our merchants would have gone to sleep, and would have said, " We are protected against France, we are all right, we can save ourselves any trouble; we will give you what we produce, and if you do not like it you can lump it."

The same thing applies to raw materials. Every country offers us their raw materials which have to compete against the productions of other countries, and this puts us in the position, as I have said before, of being able to produce a better article at the same money, or the same article at less money.

There is probably not a car made in Britain to-day that has not had some part of it made in France.

English made motors

A very large proportion of motors is almost entirely made in this country, and I hope before very long every car will be made entirely here. Mr. Aster builds an engine on models designed by us, called the " Argyll Aster." It is not their standardised engine. When we started the original Argyll car we resolved
601 not to go into the question of engines at all, because we thought that the furnishing of the car, the differential, change-speed gear and other parts were quite enough to tackle at first. In consequence we tried the engines of a great number of motor-manufacturing companies, the M.M.C. engine, the Simms engine, the Clement engine, engines from Aix-la-Chapelle and others, and all these we found more or less defective. My colleague, the Managing Director, and I went to Cologne, to the Gas Motoren Fabrik, went into the whole business, and came to the conclusion that the Aster was on better lines than any engine, either British or foreign. We accordingly ordered at first his standard engines. This year we have altered these to our own design in important parts, and it is now built exactly as we require it. We are turning out just now over 20 finished cars per week. The Argyll car has never been largely an assembled car, as we only buy those parts in France which we can get better and cheaper there than here. We get a great many cylinders in France, but not the differential, nor the car, nor the chassis, nor anything else about the car except some of the engines and cylinders.

Advantages of free imports

Allow foreign motor cars to be imported and let the country have the advantage. If they can buy cheaper and better cars in France than can be supplied to them here, let them do it. That will serve the greatest good of the greatest number. If we cannot make better or cheaper than anywhere else we do not deserve to have the trade. I have never seen dumping do very much harm. I do not believe in it, and am not in the least afraid of it.

The first principle of Free Trade and free imports is cheapness and efficiency of production. That is 602 the whole point with regard to the automobile industry, as it is with regard to every other industry under the sun. Free Trade and free imports have put us in the front rank to-day. Supposing there had been an import duty we should either have refused to put in that machinery or have been compelled to do so at a disadvantage, or we should have lost the trade. I say advisedly that the great increase in our business, and the fact that I have not the slightest fear that we shall control this industry, as we control other engineering industries of a similar kind, is due to a large extent to our having the continued blessing of free imports. Our system of free imports is a great disadvantage to foreign countries, and prevents them from getting a position in the British home market except on disadvantageous terms, and greatly to the advantage of this country. My experience, which ranges practically over every country in Europe, is that wherever a German, an American or a French manufacturer has to deliver goods you can buy them cheaper in this country than they sell them in their own. Thus you can buy many American machines, delivered in Manchester, for less than you can purchase them in Massachusetts, Pittsburg, or wherever they are made. That is because they have to compete not only against the British makers but with every other maker of similar machinery in the world. Thus we are in the happy position of having the whole world coming to sell to us in a free market, and, as a natural consequence these people have to take the lowest price. I have been 40 years in business, and we buy foreign goods because we can buy them cheaper in order to make use of them and to make money out of them. Steel plates, upon which really a very small amount of labour is expended, are brought here and used in building ships, locomotives, gasometers, and a hundred and one other things, upon which £3, £4, or 603 £5 of labour per ton is spent. That enables us to control the markets for these more highly finished products. We will not buy the goods unless we are going to make a profit out of them or use them for manufacturing, and on every article we buy we do or ought to make a profit. Importation of foreign yarns for British weaving has been of immense advantage, as it has enabled our manufacturers to get a much better outlet for their goods to protected countries, and more especially to the Colonies, where we have been able to offer them, I once more repeat, either better goods at the same money, or the same goods at less money. If you put a duty on yarn, the price of cloth must rise and the farmers would have to pay more for their clothes, so you are thrown back at once on having to tax wool, and that means taxing raw material. The end would be that after the farmer's present lease had run out the landlord would say, " You are getting 1d. or 2d. more for your wool, and you must pay more rent." Naturally rents would rise and everyone would be thrown back to the disastrous position occupied by the people when the obsolete system of Protection prevailed in this country,

The United States is one of the greatest examples of the blessings of Free Trade that you can have because it is absolutely free in its inter-State trade. Consequently America affords no basis for comparison whatever with a nation like Britain. The proportion of their manufactured goods which they export is very small as compared with ours. The exports of America, the most protected country in the world, fell during the last three years about £13,000,000, when our exports were going up about £13,000,000. There you have a large country with vast tracts of virgin soil and an immense immigration constantly bringing in a large amount of money. America has developed in spite of its Protection owing to its great supply of raw materials and its vast tracts of virgin soil which they have been able to cultivate to advantage. 604

In spite of heavy import duties the United States largely controls the automatic machinery industry because they enjoy an absolutely free inter-State trade, a position of affairs which will never exist in this Empire, as the Colonies will not give it.

We are sending cars even to America, where they have to pay 40 per cent. I do not care whether America raises the duty against us further. We are so overwhelmed with work that we do not require to cater for any particular trade. If we found foreign markets closed against us we would deal with the question when it arises. In the meantime they are not closed against us, the best proof of that being that we are in a position to command the trade, and are very happy under existing circumstances.

It is undoubtedly due to technical education that Germany, labouring itself under the disadvantage of Protection, has been enabled, to some extent, to increase its trade in certain directions. Speaking generally, the French designer of motor cars is in advance of ours, because for 8 or 9 years he has had uninterrupted access to this business. But I am equally confident that there is absolutely as much engineering skill within 20 miles of Glasgow as there is in all France put together. The ability is there ; the only thing is to give it fair play.

Labour conditions under Protection

I am connected with some pretty big businesses in Germany, where they are fairly well protected, and I can speak from knowledge, and not merely from hearsay or blue-books, that the conditions of labour there are atrocious as compared with the general conditions of labour here. 605 They have more grinding poverty and penury than we have in this country. Just now the condition of labour in America is very satisfactory, because they have an internal trade boom. But in 1898, when I was last in the States, there were whole streets of mills with the workmen locked out, and that will happen again. To have a market which is confined to itself, as the American manufacturer is more or less, is certain to have the result that every now and then a time of glut will come, and in America the result always is a far more marked depression than ever exists here.

Duties

The tariff question should be left alone. We should not return to the antiquated system of imposing duties, which would be disastrous to this country.

Preference

A preference of even 75 per cent. is not the same thing as no duty. A preference given to us by the Colonies is to our advantage, and consequently to the disadvantage of the inhabitants of the particular Colony which gives the preference. If that preference is to be purchased by crippling us in other directions in regard to our world's trade, then I say, " Thank you for the Imperial trade. I prefer the world's trade. I would rather have the substance I have than the shadow which is offered." If the Colonies were to offer me a preferential duty off their ordinary import duty and I had to purchase that by having to pay an import duty on my raw materials, I would say, " Thank you for nothing," because I should lose a great deal more than I could possibly gain by any trade that we shall do in the Colonies.

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WITNESS No. 263

MR. S. F. EDGE

(Representing S. F. Edge, Ltd., 14, New Burlington Street, London, W.; Motor-car Manufacturers).

Condition of Motor Industry

Our factories were originally at Lambeth, and then we moved to Acton. We had at Lambeth a general engineering business, which had been carried on under the name of D. Napier and Sons for some 75 years, and 7 years ago we started to make motor engines in a small way, and then motor-cars. At that time we had to buy from abroad springs, axles, electrical apparatus, coils, accumulators, lubricators, tyres, and various small accessories, also steel for the crank shafts. We made the whole of the engine and the gear, and could also get the steel for the frame. We bought these things from abroad because it was not worth the while of special manufacturers in this country to cater for such an exceedingly small market. We went

Initial difficulties

to various manufacturers about springs and axles. They said they were interested in the matter, but did not see their way to embark upon it because the demand was such a small one, but to-day we are buying our springs in Sheffield cheaper than we can get them in France. We had difficulty at first in getting good springs, because they were not suited to the special requirements of a motor-car, and we did not expect them
607 to be, but as soon as we were able to say to them: "Now we have so much business for you if you will get us suitable springs," they said: "Tell us what you pay for them in France and we will supply you with them cheaper, and although we do not expect to make any money, we will go on supplying you with these springs, replacing those that break, and will do everything possible to build up a demand." They did that, and to-day we can buy all our springs from them, and a large number of other firms are able to supply us also. People say that the French make the best article, but they were really all made by Lemoin; he has got the trade because a certain number of leading firms in France put money into his business, and the result is that to-day he is sending a vast number of springs all over the world. We can buy in Great Britain as good a spring as can be purchased anywhere abroad and actually cheaper. There is a firm in France in which I am interested, which is now buying its springs from the Sheffield manufacturers. We were in the same difficulties with regard to axles. The axles that had been made here for ordinary carriages and carts were not good enough for motor-car requirements. The strains were very much more severe; the speeds were eight or even 10 times as great, and the class of workmanship required had to be much more accurate; so the manufacturer had to learn how to make suitable axles, and to-day one can get axles here as good as abroad. Where the demand has been big enough the English manufacturer can make the axle. This trade has become fairly large in France and Belgium; they standardise them and turn them out in large quantities, and therefore it is impossible for a new firm making small quantities to sell at the same price. There is no real difficulty in the way; it is not because they have any special knowledge,
608 but merely because they have had a market already made. The same thing applies to lubricators and a number of small things which are special to the motor-car industry. Firms had already become established in France before we started the motor-car industry in this country. But to-day we can buy our axles and lubricators here, and in many instances we make them ourselves, as well as steel for crank shafts. There again it was a question of demand. Crank shafts are wanted of an enormous tensile strength. When we started in this country the steel we bought originally was of about 35 tons to the square inch tensile strength, To-day we get 60 or 70 in some instances. When we give large orders they make it for us here as well as we can get it abroad. On the price question there is very little difficulty. The material thing was to get the quality. The price of the raw material is relatively small, because it is such a small factor in the total cost. The labour is the great thing, and if you can get the quality the price may safely be depended upon always to become fairly reasonable. To-day we are in the position that we can turn out an entirely British automobile in this country. I admit we have to take a little more trouble; it would be easier to go to the men in France who have the parts ready, but it can be done in this country, and the more people do it the greater will be the supply of the raw material, or, as I should say, the semi-manufactured material.

State of Trade

This industry is growing very fast. Our own business in 6 years has grown very rapidly. We started by making one car 6 years ago. Last year we had a turnover of £260,000; this year we shall have a turnover, judging from orders in hand, of over £400,000. A few years ago I embarked everything in it, I had such confidence. From Mr. Napier's point of view it seemed very doubtful; indeed he looked upon me as a
609 madman. He said, "You may do as you like, but I do not put all my eggs into one basket; this thing is too speculative." Practically all the manufacturers in this country are very busy. I do not know that we can take any merit to ourselves for it however. It is rather because the demand is an ever increasing one. I do not think we are anywhere near its maximum. The restrictive measures which were in vogue some years ago had the effect of stifling the trade. This industry is a particularly deceiving one. Up to the present moment very few firms in the whole trade have made any money. The bulk of the firms in France have lost very large sums of money, and most of them will not be in existence in a very few years. The business is one which will get into a few hands in each country because it has to be very big in order to hold on. Improvements are coming so fast one upon another that if a firm make a mistake one year it practically takes all their profits for the next 3 or 4 years. They have only to make a mistake in regard to what the public are going to ask for. It is a business in which the public say "This is what we want," and they will not buy anything else.

Prices

The coach-builder does the upholstery and we can get better value pound for pound here than in France. On the other hand the French designers on the lines of the body, and curiously enough on actual upholstery, are better than we are. They seem to be more tasteful. The artistic finish which the Frenchman gives to all his work is shown in the carriage body. But the price of these particular carriages is right away in front of anything else. If people would pay the same amount of money for a British carriage they would get the same style and finish, because it would attract the manufacturers. Their price is at least 33½ per cent. more than you would pay for a carriage of similar workmanship in this country. In cheaper cars you can now actually get quite as good value in this country as anywhere, but that is only recently. In the more expensive cars you can get as good value in this country as abroad. In my own business we are selling a very high-class car and are getting more for our cars than is obtained in any other country for the same horse-power, that is the Napier. We make a car for which we could get more money than anyone else, because if we have a reputation for the best thing we can at any moment build a factory to turn out a very much cheaper kind, and there is no difficulty in making them. A number of firms make cars of a high quality in England; but there are scores who cannot. 610

Motor omnibuses

It is a difficult thing to say whether motors will take the place of tramcars. The initial cost of course is less, but whether the upkeep will be more is another point. But mechanical traction must take the place of horse-drawn traffic, because it is cheaper. We tried the making of motor 'buses, but the demand became so great in the ordinary part of our business that we did not continue it. We can build quick enough, but to train men takes time, and we can only place a certain percentage of new men among the old ones. The trade therefore has to grow. I am just establishing a factory and putting £100,000 into it to make 'buses only. Some of the large omnibus companies are at present having omnibuses manufactured in Germany. Nearly all the machines used by one of our great railway companies are made in Germany. That was a speciality which the Germans took up, and they have held on to it wonderfully well, though they have lost a great deal of money by it until recently. They have been in liquidation and have been reconstructed more than once, but they still continue to turn out the 'buses, and they are to-day just beginning to reap the benefit. No one here has attempted to meet the demand. This is an industry which has had a very small amount of capital put into it because capital was lost through company promotion or bad management, or through the public not being ready to purchase. They were not educated up to the enormous sums of money they would have to pay for the things. 611

Motor transit

I look forward to the day when everyone will convey goods on the highway by mechanical means instead of by animal power. There is no question about it being cheaper. I anticipate that in country districts, where so much has been made of the heavy railway charges on produce, a great relief will be given to the producers by the road traffic. It is cheaper to convey produce by road than by railway if the distances are not too long. Where time is the essence of the contract the mechanical vehicle on the road has often a very great advantage, as the produce can be taken from one point to another without any transfer. A large miller I know very well has had vehicles from us, and since he introduced them he has trebled his business, simply because he is able to increase his range of action. Then, owing to his being able to do a big business in one place, he is able to compete in price, and the cost of his milling is kept down. He runs his mill night and day, and full speed all the time. I look forward to the time when an engine will be manufactured which will practically take the place of the cheap £20 horse; but the cheapest form of traction, that which people are prepared to pay the smallest sum for, is the last thing that receives attention; one devotes one's attention first to that which brings most profit at the commencement. A cheap and reliable car can be got. The Wolseley and the Maxim people make a magnificent small car, but then they make it in large quantities. There is no better value to be got anywhere than the Wolseley car. It sells for £185, and is 6 or 8 horse-power. It is really splendid value for the money. The Wolseley car is of British manufacture with the exception of a few fittings such as coils. The Argyll are trying to make a British engine and they will do so; it is only a question of time. 612

Exports to United States of America

We send some Napier cars to the United States. The duty is 40 or 45 per cent. The orders are from the class of people who are prepared to pay an abnormal sum for something which they think is the best. At present they take all our surplus output in America. We have established a factory there which will be in working order in about 6 months, because we cannot hope to keep that trade in the face of the duty. The result of the American tariff is that we must employ American labour. While we can keep the trade in England for a year or two, we cannot hope to continue it long. The only saving clause in the motor-car trade in America is that the particular class of vehicle that we are making here, the long distance vehicle, is one for which up to the present, owing to their lack of roads in general, there is not much demand. We expect that they will lay themselves out for making roads. Three years ago Mr. Napier and myself considered very seriously whether it would not be better for us to go to America and manufacture everything there and sell the stuff in England, because there we should have our American market protected and our British market open. Before we established our works at Acton it was a toss up whether we went to America or remained in England. Personal inclination ultimately turned the scale. There is a very great deal of labour, fitting, &c., in the motor-car, therefore we had to look at the question of labour being heavier in America, but from our experience of America we were inclined to think we should get more work out of the men, simply because the climate enables one to do more work. I employed some Americans, who were excellent in America, and 3 years in Birmingham reduced them absolutely to flabby wrecks—very much worse than the local man. All their brightness seemed to leave them. They said they could not stand the climate. 613

Exports to New Zealand

Our business with New Zealand is increasing every year. There is a 10 per cent. preference there. It is chiefly American competition we have to face, and the 10 per cent. makes all the difference to us; it just gives us our business. We send a few motor cars to New Zealand and Australia, but it is too early really for our class of business. The demand is principally for engines for doing useful work—coasting boats or fishing boats, of which there are a large number in New Zealand. That business has been almost entirely American, but with the preferential tariff we are prepared to do business.

Canadian Trade

Canada draws most of her cars from the United States because her requirements are very similar. Their roads are only in the vicinity of large towns, and the class of vehicle they want is really a little runabout, which the United States have laid themselves out to make. Each country will have its own particular

614 requirements, and those who have a tariff round them will eventually supply themselves, but cannot very much hope to supply other countries which have protective tariffs.

Employment **Profits** **Duties.**

Ours being a new business employment is continually increasing, and the prospects are good. There is no standard wage, payment being according to ability. The net profits in our trade have decreased owing to competition. Tyres have become less remunerative, but trade in all branches has increased in volume by 30 per cent. to 40 per cent., and the supply hardly meets the demand. I suggest that on the semi-manufactured portion of the work a duty of 10 per cent. might be imposed. This would not be detrimental to the smaller firms. Immediately that were done it would give courage to some of these firms to make parts. They would say: "Now it is certain we are going to get this business." If the manufacturers of parts could be certain of getting the business for any length of time they would take more interest in doing it.

[**For Supplementary Evidence by Mr. Edge, see Section V. (paragraph 1198 et seq.)**]

615

WITNESS NO. 264

MR. MERVYN O'GORMAN

(O'Gorman and Cozens-Hardy, 82, Victoria Street, London, S.W.; Consulting Engineers).

Being neither an agent nor manufacturer, but only an adviser to purchasers and users of motor cars, I may naturally be prejudiced in favour of having as large a market as I can get in which to buy cars, so as to be able to take advantage of all advances. My evidence will be directed more to the use of the cars than to their construction.

Any fiscal restrictions which might be put upon automobilism with a view to stimulating the home production of motor cars must not be looked at only from the standpoint usually adopted in respect of many other industries because the statistics of its development indicate rather the overwhelming effects of various local prejudices, the character of local roads and local traffic regulations. The framing of any fiscal proposals regulating imports would involve a consideration of (1) the effect of cars in increasing employment in the country; (2) their effect in increasing the profitableness of employment; (3) their beneficial effect upon the rate of increase of wealth of the country.

616 **Effect on Employment**

Anything which would retard the development of the motor-car industry would very seriously diminish the amount of employment resulting from the use of motor cars. Each motor car produces profitable employment in two ways which are more easily distinguished than in the case of many goods, such as cotton, plate-glass, buttons, pins or boots. It produces wealth and employment by being traded in, manufactured or imported, and from the time it is put into use it produces employment continually year after year. The latter is the more important. The use of cars results in an amount of employment which in the course of two years is equal to the amount of employment in the manufacture of the car itself. But a car lasts more than two years, so that every car which comes into this country results in a tremendous amount of employment. It does not throw out horses very much. It does something different from what horses can do. Motors also increase the profitableness of the employment. A man driving a motor car can in his day's work do more than the man who is driving a horse, the owner can afford to pay him more and he is paid more as a more highly skilled man. Every motor car in use represents say 25 per cent. of its value per annum in repairs and in tyres. We must allow for depreciation at a good rate, say 33⅓ per cent. on the value of the car; and we must allow a good sum for repairs. If the cars are kept up 25 per cent. must be expended in the country, which means that in two years something like 50 per cent. of the value of the car would have been spent on parts, on mechanics, &c. The labour item in the manufacture of a car might be taken at something like 55 per cent., though it varies enormously, so that any car which has been two years in this country has necessitated as much labour as was expended on it originally. If the car has been made here there would also have been labour employed in the making. But meanwhile we do not suffer seriously by
617 letting cars come in freely. In addition to that expenditure in repairs and in tyres, 15 per cent. of its value would be expended in the fuel and oil industry. On a £300 car it would not be absurd to say you might expend £45, but the amount would vary very widely. It will be seen from these figures that a car, whether imported or made here, is very useful in producing employment. It also represents about 4 per cent. of its value distributed as employment and profit to insurance companies.

Profits from Imports

About 20 per cent. of the price of every car, whether made or imported here, is secured on the occasion of its advent as employment, money or profit, to the agent and sub-agents and carriers in this country, viz., 15 per cent. as payment to distributing agents and their workmen and employees; 5 per cent. as commission to the head agent or importer; 2 per cent. carriage of the motor car by ship or by English rail to the user. If the price of a car is £300, 20 per cent. of that, or say £60, is divided between the agents and sub-agents. Then about 15 per cent. discount is allowed to traders about the country who are sub-agents. That holds in respect of the cars imported and also of cars made here. Many a manufacturer here has tried to do the business of distributing, but has failed. They have tried to sell cheaply so that the public would save 15 per cent. on the price of the car, but the public never bites at that; no one pushes the sale of the cars and they are not bought. A large amount of very profitable business consists of trading and these moneys mostly fall into English hands as foreign manufacturers of cars do not as a rule either finance or carry on their own agency work in this country. The industry of selling or distributing cars is a big industry and a 618 remarkably well paid one. The vast bulk of the agency business is highly remunerative and it is greatly to the credit of the English people engaged in the industry that they should have seen which was the remunerative side and captured it. The capital involved in agency work is comparatively small. I know a firm with £5,000 capital which has turned over £30,000 with a 10 per cent. profit on the turnover last year. A manufacturer with £30,000 worth of capital would not turn over £30,000 per annum. The manufacturer will make about double the profit, but then his capital is six times as great. The result is that the one is comparatively speaking a profitable way of trading and the other is not.

Proportion of Cost

An analysis of the average price of an imaginary average motor car is made up as follows:—15 per cent. for distribution paid to local agents and expended partly as their profits and partly on labour of selling, adjusting, making good initial troubles of purchasers; 5 per cent. for the head agent or sole agent; 10 per cent. manufacturer's profit; 15 per cent. manufacturer's establishment charges, rents, taxes, water, coal; 30 per cent. labour and superintendence; 25 per cent. raw materials and tyres. Obviously no maker will publish these figures, but I put them up in the hope that they may in general terms be correct. So the price of a car is made up of two parts—the price of distributing it and the price of making it, and the first part remains in British hands whether the car is made here or not. Of these two forms of business, the more profitable one, the less risky, and the one which involves the least lock-up of capital for a given turnover, in spite of the success of some manufacturers, appears by the results up to date to be the agency rather than the factory. 619

Motors and Road Values

Every motor car in use whether imported or manufactured here, increases the earning power of the roads, and therefore if England were a limited company the capital value of its stock of roads would be increased. To take a concrete example, a motor-cab service will increase the earning power of every Londoner by saving his time, by blocking the traffic less, and increasing the efficiency of the roads. Every motor car also increases the land values of all country house estates, villages and small towns remote from railways, and adds to the value of railways by feeding them. It is only houses which are very close to high roads whose amenities are diminished by dust and noise of cars, just as they would be by railways, with this difference that with all light passenger cars both these inconveniences will probably be removed within the decade.

Commercial Motors profitable

Motor cars are mighty agents for increasing the wealth of the country, because they enable us to move things much more quickly and cheaply from place to place, particularly where there are no railways. In a 25-mile radius one can move goods for 1d. a ton a mile, as compared with 4d. if one has to use the railway. This has occurred particularly in reference to granite quarries in Cornwall, in connection with which tractors have been established for several years and the cost has come down to about 1d. a ton per mile. I may refer you on this point to the work of a man who was engaged in connection with quarry traction (Diplock's Road Transport). His knowledge of the cost of tractor work in granite quarries in Cornwall is considerable. There he has had tractors—not motor cars—which pull large carts full of granite and he gives his figures very clearly on this point. It is generally agreed that roads are not very well kept up and it would be 620 worth while, if the motor traffic increases greatly, to improve the roads in this country. You can either improve the road or you can improve the vehicle which goes on it and the economic effect is much the same. Mr. Worby Beaumont, in his presidential address to the Society of Engineers gives 1,000 million sterling as a measure of the capital profitably invested in railways, and I think the 100,000 miles of roads in England, with their rolling-stock, which profitably serves these railways, may have cost about a thousand millions and yet be worth even now from two to five times that amount according as they are either inadequately or more fully made use of.

Carrying Capacity of Roads

I would recall Prof. Boys' dictum that the carrying capacity in tons per annum of a 16-ft. road, by horses and carts is in excess of that of a double line of express railway owing to the absence of the block system. Any individual item of goods will move of course more slowly on the road than on the railway, but in the course of a year the amount of goods moved from point to point will be equal and, by reason of the absence of transhipments and terminal and demurrage charges, the carrying can be done at a cheaper rate by road for all short distances up to 20 miles and sometimes even longer distances. Road carrying is restricted at present because it is slow and not because it is not cheap. It is being daily demonstrated, and will shortly be admitted, that mechanical road carriages can with safety increase the pace while diminishing the cost, so that the use of the roads is increased by motor cars for a two-fold reason. With increased use their value, and the value of the adjoining lands, is also increased while the railways are benefited by being brought (as they recognise themselves by instituting the motor 'bus and van services) into closer touch with the districts they serve. Should they double the value of our roads in this way in 10 years, we should perhaps have earned on the above estimates 1,000 million sterling. However, county 621 magistrates are so attentive and the roads so useful to school children that it will take a longer time. All this cannot be done for nothing, nor without an enormous increase of employment.

Cost of Roads

There are 100,000 miles of road in England, and you cannot make a mile of road for much less than £10,000. That gives you 1,000 millions. The extent to which the roads are in use determines their real value. We went into the cost of roads with a view of seeing whether we could make a motor-car road 25 ft. in width with a comparatively cheap tar macadam surface. The lowest estimate we could get, and in pretty level country from London to the South, was £20,000 a mile. That included buying the land. The value of the road includes the right-of-way and roads are not made on desert land. If the land were not a road it would be producing something else. If the present traffic were doubled you would not expect to earn 1,000 million sterling without doing a lot for it. I do not see why, if I earned that sum, I should not pay a great deal in maintaining the roads, and I am prepared to say you may have to pay double the present amount for maintenance. Mr. Worby Beaumont has pointed out that, in consequence of the saving from the diminution of the number of horses used to do existing work, about £200,000,000 sterling could be invested on road improvements, simply because then the horses would do more work, or less horses would do the same work. The number of draught horses is about 1,500,000. Taking £30 as the value of a draught

622 horse that would come to about £45,000,000 for the value of the horses. It is these considerations which lead me to suggest that motor cars should be let into the country pretty freely.

National Road Rate

It is most unjust because some man can convey goods from Bristol to London cheaper by car and can make his profit thereupon, that the people in Hampshire and other intervening counties should pay big road rates. The cost ought to be borne by the community as a whole, who should do all the main road repairing. The Bath road goes through part of the county of Buckingham and on a recent occasion 75 motors an hour for 12 hours went along this road. Not one of them, as far as could be seen, stopped in the county. That shows the unfairness of our present methods. The upkeep of the roads should be a national expenditure. Motor-car people should not be taxed to pay for it. The people who benefit most largely from the use of the railways are by no means the owners of railway shares. The people who own the land benefit as it is the land which is served. If you put a 5 per cent. tax on the capital value of all railways you would wipe out every particle of interest to the shareholders of the railways, and it would not be worth while to run them; you would ruin the industry and incidentally the country.

Profits

More Motors Wanted

Each motor car represents when used for commercial and industrial purposes profits to the car user and to the industry he serves. To secure the full advantage of the invention of cars we must increase their number from about £4,000,000 worth, at present, to perhaps 20 times that figure as quickly as we can. The rate of inflow of motor cars just now seems to be about £2,000,000 per annum, not counting as imports motor 623 cars that come in on tour and go out again. The import returns include the cars that tour. But we shall want about 20 times that number of motor cars if we are to substantially improve the utility and value of our roads. After that the rate of coming in will probably be stagnant. Hence it is that all countries are wanting a big increase in motor cars.

Comparison of Cars

Two things are happening, cars are going to get dearer and cars are going to get cheaper. Two kinds of cars are wanted, a dear car and a cheap car, and we shall get them both. At present the English manufacturers have performed the great achievement of making absolutely the best cheap car. There are other cars in the £200 class which are also good. It is remarkable that this English-made car has come in at the bottom price and almost everything is made in England. Our best cars are as good as the foreigner's in all but one matter—we are not yet where they are in the matter of very expensive steels. I know a man who was driving a French car in France at perhaps 70 miles an hour, certainly very fast, and he dropped 20 ft. into a ploughed field. The whole car came down bodily. Of course it ploughed its way along, but he drove out. Now no car made in England would stand that. The frames would bend, the springs would break, the crank shafts or other parts would be rendered unsatisfactory according to which part received the blow. But he rode out of that ploughed field immediately. Luckily it was soft ground and he was not hurt.

Trading *v.* Making

In England there is difficulty in getting money for the motor business because of our tremendous facilities for trading. It is a great thing to be able to trust your shippers and brokers and there are many 624 reasons why we should trade rather than make. The working classes are very slow to move from one form of industry to another, because they are not educated, but the working man who has hitherto been engaged in any manufacturing undertaking will not mind very much in the long run finding himself compelled to move over into the business of repairing motor cars.

Duties

I am surprised to hear the opinion expressed that a duty should be put on parts, because the work of assembling those parts is not infrequently of a more highly skilled and therefore better paid order. Do not tax parts, they are *quasi* raw material. In England the manufacturer is disposed to be asleep and it is very good for him to see other motor cars coming up to his door. My feeling is to let them in and to do nothing to hamper them. It would be most regrettable if any import duty or other restriction however small should be imposed upon the legitimate increase of the motor-car trade in this country. The manufacture is already on a firm basis and though the most speedy cars are not yet proved to be of British make the best authenticated proofs of reliability in the extreme tests yet conducted have been given by British cars whose cheapness rivals any yet produced. I would not like to see a tax upon the imported machines and that money expended on making the roads better. The right people to pay for the repairs of the road are not the people who do everything to increase the value of those roads. The reason why your country house is worth £1,000 a year instead of £100 a year is because it is in touch with London through the railway. Therefore the person who really benefits most from the railway is the ground landlord, who owns the house. He has benefited much 625 more by the railway than the railway company has. Do not therefore tax the railway and similarly do not tax the motor car; tax those who benefit by it.

WITNESS No. 265

MR. JOSEPH EVANS

(Joseph Evans & Sons, Culwell Works, Wolverhampton; Hydraulic Engineers).

State of Trade

Trade has been fluctuating in recent years. In the busy and more remunerative times—about 1900—we worked a double shift of night and day men. Now we have less than our ordinary staff of day men, and are employing about 30 per cent. less men. In the "Black Country" many trades are dying out; some have gone altogether, and I know there are some which do not pay. Other trades arise occasionally which to some extent replace those lost, and there are some which have moved to other districts—for instance to

626 Newport, Mon. We are devoting ourselves more to engineering and other trades than to the manufacture of iron and steel. Bicycle making is somewhat under a cloud just now, and only a few cycle firms are really holding their own. The new trade in motor cars has developed a little, and the electrical engineering trade has increased, but that is not a very extensive business. Our trade with South Africa is increasing since the war, and we find it is really a better market than Australasia.

Causes of Change

Trade fluctuates owing to causes which we cannot always find out. We are very busy ourselves, but then the prices are so miserable that it is simply a matter of keeping the works going. We have sold machinery from stock absolutely below cost price in order to do trade. But allowing for ups and downs there is a drift downwards. That falls upon the manufacturers rather than upon the employees, because the wages of the workpeople remain practically the same. I attribute the condition of trade wholly to the home and foreign competition. The home competition follows the foreign. The articles we manufacture meet with very strong competition from American houses particularly, and from German houses to some extent.

Profits

Profits all round have very much diminished since foreign competition has become so severe. The total net profits in our district have diminished in recent years in relation to turnover. It is a by-word among us that if a man is busy he is making no money. One particular line has been more unprofitable than any other, namely steam pumps, where one comes into competition with the Germans and Americans.

Labour

627 Some American and Continental firms when they settle in this country bring over a lot of their own men and foremen, but I hear that they do not always think too much of them, and that they change for Englishmen. In America nearly all the superintendents I saw were Britishers. It is their protected market which enables America to dump their goods here; they could not do it otherwise. You read of the Americans working very hard in some places, and it is true; but it does not follow that they get out more work per man than we do, except perhaps by automatic machinery or by a lower standard of the goods. Equipment of the workshops in America is something like it is in this country; some are better equipped than others, and you find some most wretched places.

Wages

The rate of earnings automatically rises and falls with good or bad trade. If trade be good of course wages go up. If trade be bad we do not reduce the old men or the old servants; but if a new man is started as a rule we make some reduction. But taking it as a whole men are not suffering in that respect. Good men are getting just as good wages.

Piece Work and Bonuses

628 We have a special system of piecework. Instead of stating a piece price for a particular article there is an account taken of a man's work covering a month. If he has done well, he receives a bonus of from 15 to 35 per cent. of the total wages paid. But a man is not always engaged on one article, he is sometimes on one and sometimes on another, and it is very difficult for him to gauge the bonus as he does not know upon which article he gets it. We do that to encourage him to do the best he can on every article. He does not know till he gets his bonus ticket that he will receive more. In one or two departments we pay by the piece.

Use of Foreign materials

We in England purchase largely from Germany and re-sell steel tubing up to 12 inches in diameter. We also buy steel in other forms. We have insisted on several occasions that the material should be British, but we cannot always trace it. I should think we use about one-tenth of foreign material. German tubing is 5 per cent. to 10 per cent. lower in price than that of Staffordshire, but it is not as good. Very probably some of this German tubing is dumped, for we have been offered large consignments in London. America would buy their pig iron cheaper than we should. We have bought American pig iron, but it is not of the quality which would suit some English manufacturers; it does not suit us. In the matter of scrap iron, which is used very largely among engineers, their price is if anything less than ours. We buy from America some £10,000 to £12,000 a year of machinery that ought to be made in this country.

Freight Rates

629 Our trade suffers from the lower freight rates adopted in foreign countries. The rate from our works to Rotterdam, for instance, is higher than from New York to Rotterdam. I believe the Americans have special rates for the trade with the Continent, the Cape and South America. Their Government seems to watch these things much more closely than ours. The railway rates in Germany are much lower than ours, and they get water carriage, their works being mostly favourably situated in that respect. We have canals to London, but still we cannot deliver so cheaply in London as the German manufacturer. The railway companies control the canals, and canal rates are too high.

Foreign Competition

Many foreigners pose as English in London and elsewhere. I know personally that a considerable quantity of business has been diverted in that way, simply because British buyers have thought that the firms were British. You will find that none of them give the place of manufacture. They simply quote their price, and so pick up a great deal of trade. There are about five big American hydraulic engineering firms in London, and I heard some time ago that one of those firms had turned over years ago £100,000 a year in London alone. Our press is always speaking in praise of America, and a great many people think they cannot get as good a thing in this country. The Belgians copy largely, but probably the Germans are the largest copiers we have. They copy English designs indiscriminately. I have known cases in which they have put on the article the name and full address of the firm of whose make the article is a copy. It has been known in India for a very long time that the Belgians repeatedly stamp their iron with the trade mark of South Staffordshire makers. I have been told by a very good business man in Madras that at one time South Staffordshire used to make all the iron for the native smiths, and now he says it all comes from Belgium with the English trade mark on.

Mr. J. Evans

630 **Foreign Competition in Colonies**

Having taken observations on the spot, I am pretty well acquainted with the working of the trade in the Colonies and in America. The United States and Germany dump not only in this country but in the Colonies, competing with us there just as strongly as here. In Australia the chance of the Britisher is very small indeed in some goods. Though we could compete in price and give a superior article, it is most difficult indeed to do trade. The British-made article as a rule is superior to both the German and American, so that we were handicapped to some extent in that way, cheaper articles being very frequently chosen. A new country like Australia will not spend money on the superior article. In India they will take a superior article much more readily than in Australasia—the market seems to be better. Five American firms are established in London, and are doing a large trade. We find competition with them principally in the steam pump trade and pumps for South Africa, such as windmill pumps and general irrigation pumps, manual and power.

Proportion of Elements of Cost

Our dead charges, taken together, come out at 25 per cent. of the turnover. Our labour is much more than material, and even that varies, because the weight of the article varies very much. You might take it that 56·25 per cent. would be for labour, and 18·75 per cent. for material. There are certain charges which of course would go on whether we are working one or two shifts, such as rates and taxes and a variety of additional charges. We are not rated any more because we are working with a night shift, but this is equalised to some extent by the loss incurred in paying the same wage for the eight hours night shift as the nine hours day shift. Night shifts do not pay. They are sometimes expedient, but we do not
631 propose to try the system again. In management only, it means one or two night foremen.

Technical Education

On the whole foreign countries have not derived any important advantage from their systems of technical and scientific training. We have tried higher grade school boys in our own place, and do not find them so good as the boys who are given a moderate education and who serve their apprenticeships in the shops. The entire curriculum of the higher grade school is at least 20 years behind the most modern system. We have drawings done by the boys which, without doubt, are at least 50 years old. We have sent articles occasionally to our public schools of Art—the latest thing—for them to copy but the manipulation of the work itself is so different from that of the old times that a boy absolutely knows nothing about it when he gets into the works from the higher grade school. If you teach a boy the three R.'s, and see that he is grounded in drawing, it is quite sufficient for him to commence work in the shops. We even find that a manager or foreman who has graduated in the shop is far better than any outside man, and better than a man who has graduated both in the college and in the shop. The exception to that rule would be the draughtsman —the man who does no work except on drawings and designing. In the great majority of cases he is the man who derives the benefit from higher education. You cannot expect, and you do not require, an artisan to work out logarithms, &c., which a head draughtsman up-to-date is supposed to do. Moreover, a boy who has been through the schools is very averse to "taking off his coat." He wants to walk about the shop in broadcloth. He expects to be at the top of the tree almost as soon as he gets into the place. We do not want captains and officers only; we need the crew also for the more extensive manual work. Boys begin
632 at 14 and are apprenticed for seven years. Sometimes they begin later—probably 15. We have had apprentices for three years and "improvers" even less. Even though they have had some schooling I should not be willing to shorten that term of apprenticeship by a moment.

Trusts

The first reason for the amalgamation of large concerns in the United States, Germany, and other countries has been to avoid internal competition. The large makers in America competing with each other have very little or no chance. The American system is to produce only one thing, if possible; for instance a special steel for bridge work. The result is that they produce so largely that competition simply cuts their trade away. So they form a pool, and, of course, the surplus is sent over here and to other places. A factory producing only one article needs combination to keep up prices and to secure a profit. The system could not exist without a tariff which undoubtedly assists in maintaining prices.

Standardisation

The engineers have worked for standardisation for a long time, especially in their own business, but they suffer a great deal from the fact of having to work to special designs. For instance, you get an elaborate waterworks-plant drawing to work to, which involves the production of entirely new patterns, whereas you probably have patterns which are equally as good as or better than those you are asked to make.

Decimal system

If any alteration be made I am in favour of the decimal system, but I do not favour the metric system.
633 I should like some better system than we have now, and I should favour a unit of the inch as a standard, because it would adapt itself better than anything else to the British system. You hear very little agitation for a decimal system in America, and up till now America and Great Britain have been the largest manufacturers in the world. It is said that they want it all over Europe and Asia. The Germans, French and Belgians are the only people of importance that use it or want it. As regards the standard of weight, the pound adapts itself very well to the gallon (10 lb. to the gallon). That is a decimal system at once, and you can multiply it very comfortably and arrive at your own weights. Coinage is a different matter, and there is no particular difficulty about that. The French and Continental coinage and measurement do not adapt themselves to a divisor of four. Then there is the cost to the English and American engineers and others who use measurements of a conversion to a different system. The cost to our firm to change the system would probably be £25,000 to £30,000, so that it is a very important question. We should have to make all new patterns, new standards, new gauges, and do all our printing twice over. We should have to give the present English equivalent in our catalogues and our works, and it would be a long time before it could come into general operation.

Patents

Foreigners have an advantage in their system of patent laws. The American system is far better than ours, the fees are lower and you get a guarantee. In this country the law does not give you any security. You take all the risk when you have bought your patent.

Foreign Tariffs 634

Tariffs prevent trade entirely with such countries as the United States. For instance we cannot send a pennyworth of goods to the United States, and we do not try; we have 35 per cent. against us. Foreign tariffs tend to the efficiency of production in foreign countries. Having secured possession of his own market the foreigner is enabled to work on a larger scale, and to dispose of his balance abroad. Our trade policy has helped the foreigner to succeed.

Duties

In order to safeguard our trade we should have a duty of 15 to 20 per cent. Since the New Zealand tariff has been in operation we have commenced to ship more to that Colony. Our trade fell away almost to nothing in some lines. We do not get a penny more for the goods; in fact in some instances we have actually been below our old rates, but we secure the trade. I mention that to show that the tariff would be sufficient to secure us the orders, which is all we want. British duties upon manufactured and partly manufactured materials would not harm us—in fact I think they would improve our trade, because, as a whole, we can get all we want manufactured in this country. We are never at a loss for material. I would not support any scheme that would create permanent monopolies, which small duties would not do.

[For Supplementary Evidence by Mr. Evans' Firm, see Section V. (paragraph 1198 et seq.)]

635

WITNESS No. 266

MR. J. R. RICHMOND

(C. & J. Weir, Limited, Cathcart, Glasgow; Hydraulic Engineers).

State of Trade

We have supplied gear to practically every navy in the world with the exception of the United States, where the duty shuts us out completely. We can compete with the Americans in Continental markets and have succeeded in taking a good deal of trade from them, but we find that even in cases where our gear has been specified in America by engineers who are desirous of having it, the tariff prevents them getting it. On one occasion for two vessels built by an American shipbuilding company our feed pumps and feed heaters were specified by the superintending engineer, who was desirous of having that gear in the vessels. The company wrote and asked us for quotation and drawings, but the enhanced price, due to the tariff, was so great that it was found that they could not pay the extra money. That is one instance of a number in the same line. The tariff alone prevented us from competing. In the case mentioned the engineer was desirous of getting our gear because he had had previous experience of it. He had built ships in this country and had 636
ships with that gear. The Americans send us a good deal of machinery, but I think, from statistics that I have seen, the amount they are sending to this country is declining. They sell it here for a lower price than they get in their own country.

Patents

My firm is the maker of an apparatus called an evaporator for making fresh water from sea water. It makes up fresh water in the boilers for the loss of that escaping through glands, &c. That apparatus has been supplied largely to the British and practically every other navy. At one time one of the firms of very high repute in America was building a battleship for which they asked us to quote our evaporators. We quoted, and they subsequently wrote and asked us if we would send them full drawings of the apparatus which we proposed to supply, and for which we had at that time a patent. We did not receive the order, but the battleship was supplied with our evaporators all the same. These drawings must have got into the hands of an American who took out a patent in the United States precisely the same as ours, and has now a business in that apparatus. A British firm also is now making or at least advertising our evaporator, which is made according to these American drawings, and there is little or no difference from our original apparatus. We did not bring an action for infringement against them in the United States of America, because we thought we should be much better occupied in attending to our business at home than in going to America. It would have required one of our partners to go to America, which would have taken up too much time, and the result would have been doubtful, even at the best. We did not care to embark in American litigation as the business at that time was small, and we did not consider it was worth our while to litigate about it. 637

Duties

It is extremely difficult to say what import duty would be effective. On high-grade gear it would be of very little value to firms like our own, because at present we can quite well compete with American high-grade gear, which is occasionally specified in this country, and on these occasions the United States of America price is higher than ours. If we put a duty in this country on American imports, it would raise the price in this country of that particular kind of manufacture unless internal competition affected it. If a duty were put on American imports of the same class as our own, and that duty had the effect of lowering the United States of America tariff, then firms like ours would probably send out people of their own to establish branch agencies in the United States of America. If the effect of a duty is to ensure continuity of work of one kind, it would pay to instal automatic and semi-automatic machinery. The result would be to displace a certain class of labour, so that the wages bill would decrease to that extent, provided you can use the automatic and semi-automatic machines which are necessary on continuous runs of work. A great amount of other labour would then be employed to handle and deal with the product when it is made. The result would be more employment in the aggregate.

Effect on Labour

[For Supplementary Evidence by Mr. Richmond's Firm, see Section V. (paragraph 1198 et seq.)]

638

WITNESS No. 267

MR. W. HARRISON

(Harrison, McGregor and Co., Ltd., Leigh, Lancs.; Harvesting Machinery Manufacturers.)

State of Trade

The branch of the agricultural machinery industry with which my firm is connected is that of the manufacture of harvesting machinery, *i.e.*, mowing, self-rake, reaping and self-binding machines and food-preparing machinery; some firms make mowers, self-rake reapers and self-binders, some reapers and mowers, and other mowers only. No firm in the United Kingdom manufactures solely harvesting machinery, as the trade is essentially a season's trade; thus many firms make food-preparing machinery, chaff cutters, turnip pulpers, corn grinding mills, corn crushers, oil cake mills, horse gears, &c.—this being a trade that finds its sale in the winter. As to the food-preparing machinery, we have, so far as the home trade is concerned, no competition from abroad. Those are manufactured solely for the home market by English, Scotch and Irish makers. The home competition in this class of machinery is keen and keeps down prices.

Food Machinery

Some 15 to 20 years ago England did a very large trade in food-preparing machinery with Germany, but owing to the manufacture of these machines by Lanz and other German firms, and owing also to a duty being
639 placed on this class of goods, the English trade in Germany has become almost nil with the exception of corn grinding mills. The profit on food-preparing machinery is low and we cannot quote terms to Germany which will allow us (taking the carriage and duty into consideration) to compete with German makers.

Harvesting Machinery

The demand for harvesting machinery it may be said is annually increasing in the United Kingdom, on the Continent of Europe, in the Colonies, and in other foreign countries, and it has to be admitted the manufacturers—in the bulk—of the United Kingdom are on the whole obtaining a smaller annual share of this trade. The great proportion is being done by American and Canadian makers. The manufacture of harvesting machinery may be said in a special sense to be confined to makers in America, Canada and the United Kingdom. In France, where the demand is very large, no material progress has been made by French manufacturers during the past 15 years, and there appears no prospect of any advance on their part. In Germany some progress has been made; there are a few makers, but in the aggregate their output is not comparatively large. In Austria the State factory manufactures a few machines, also one or two other factories, but the native competition is not very great although the Austrian Government in its new Tariff is fostering the native makers. In Russia a special reaping machine is made by several makers, which is not worth the while of American, Canadian or British makers to manufacture, and it may be said that about 85 per cent. of the Russian demand—which is enormous—is supplied by America, Canada and the United Kingdom, the latter's share being very small. In Sweden there are several makers of mowing machines, but the largest proportion of the requirements are met by America, Canada, and a small supply
640 from the United Kingdom. The International Harvester Co. has recently established a works to manufacture mowers and rakes to meet the native competition. The other continental countries obtain their supplies of harvesting machinery solely from America, Canada and the United Kingdom.

Colonies

Australia and New Zealand buy annually large quantities of harvesting machinery and they take their supplies chiefly from America and Canada, with a small percentage from British makers. South Africa will take an increasing quantity of harvesting machines, the greater proportion of which will be supplied by America and Canada.

South America

Both the Argentine Republic and Chile are large purchasers, and there also the supplies come in a very large proportion from America and Canada. There are other territories where harvesting machinery is sold and the proportion of supply is the same in all cases.

My firm has always cultivated the foreign trade and it can be said that its foreign trade is increasing both on the Continent and in the Colonies with very encouraging and favourable future prospects.

Home Market

It is impossible to obtain actual proof, but it can hardly be denied that American and Canadian makers are supplying 40 per cent. to 50 per cent. of the requirements of Great Britain and Ireland in mowing machines and self-binding machines.

641 **American and Canadian Competition**

The natural query is—What are the reasons that the great bulk of this important trade has gone to America and Canada? They are in my opinion these:—From 1873 to 1883 may be taken as the period when the trade so far as English makers of harvesting machinery are concerned was at the zenith of its prosperity. The English makers had the largest proportion of the home trade and a very good share of the then Continental and Colonial trades. There was then but little American and no Canadian competition. The Paris Exhibition of 1878 brought exhibits from all the large American makers, who thenceforth commenced to recognise the importance of the European market, and from that time American competition became more pronounced, and business was pushed more and more by them. The English makers being busy, and their works fully occupied, failed to appreciate the actual and prospective seriousness of this competition, and looked upon it as one that would not materially affect them. This was perhaps due to the assumption that the American machines—mowers especially—were not then quite suited to the requirements of European agriculturists, especially British. These machines were of lighter construction than those of English makers, and whilst suitable to the lighter American crops, were not sufficiently heavy for the heavy meadow crops which prevailed in Great Britain, and in some districts in France and Germany. The American makers however recognised that alterations had to be made, and they made them. It was also assumed that the American makers would be amply occupied in supplying the needs—which were enormous—of their home market. As evidence of the difference of the competition in 1879 and 1906, the following extracts

642 from the catalogues of the Royal Agricultural Society of England as to exhibitors of American and Canadian harvesting machinery at these respective dates, are striking:—

Royal Show, 1879

American Firms:—Aultman Miller and Co., agents Edmondson and Co., Manchester.; Adriance Platt and Co., agents Keyworth and Co., Liverpool; D. M. Osborne and Co., agents Whiteside and Co., Liverpool; Johnston Harvester Co., and W. A. Wood, with warehouses in London.

Royal Show, 1906

American Firms:—McCormick and Co., Deering Harvester Co., D. M. Osborne and Co., Plano Manufacturing Co., Milwaukee Co., Warder Bushnell and Glessner. The above six firms all having warehouses in London, have been amalgamated into the International Harvester Co., Chicago. W. A. Wood and Co., with warehouses in London; Adriance Platt and Co., agents Keyworth and Co., Liverpool; Johnston Harvester Co., agents Blackstone and Co., Ltd, Stamford; Aultman Miller and Co., agents in Sheffield.

Canadian Makers.—Massey-Harris Co., Frost and Wood Co., Noxon and Co., all with warehouses in London.

The management of these London branches is concerned solely with the trade of Great Britain and Ireland, except in the cases of W. A. Wood and Massey-Harris. The control of these firms over the business on the Continent is simply for the purpose of supervision, and it may be taken that the energies of the different staffs are directed to the furtherance of the trade of the United Kingdom. 643

Effect upon British Industry

The trade of Great Britain and Ireland in harvesting machinery may be said now, so far as American and Canadian competition is concerned, to be confined to mowing machines and self-binding machines. The best American and Canadian mowing machines are sold at lower prices than the best British machines, but it will be admitted, without prejudice to the American and Canadian makers, that there is a difference in the construction of the respective machines which justifies a difference in price. The standard type of two-horse mowing machine made, say by McCormick or Deering, is sold to agents at about £1 less than the standard type of machine made by my firm (Harrison, McGregor and Co., Ltd.). The prices to agents of the best American and Canadian self-binders are no lower than those of the best English makers. The enormous protected home demand in America and in Canada for harvesting machinery has resulted in the building up of very large works with the most up-to-date mechanical appliances and elaborate commercial organisations, and thus the cost of production per unit has been brought down to a very low figure. What has been accomplished in America and in Canada can in my opinion and from my experience to a very large extent be accomplished in the United Kingdom. Certainly if in the years 1878 to 1888 the leading English makers had extended their works and had cultivated and fought for the Continental trade, the competition to-day might not have been so great. By the manufacture of a larger quantity of machines the cost of production would have been relatively reduced, and would have allowed of the extension of business on the Continent, in the Colonies, and in other foreign countries, and as the demand has been annually increasing, the works would have also increased, would have consumed a greater quantity 644 of material and employed a larger number of workpeople. The loss to the United Kingdom in value of materials and wages through the diversion of the great bulk of the world's harvesting machinery trade to America and Canada is enormous, and to get back our natural proportion would add to the general prosperity as so many varied materials are required in its manufacture.

Trade with France

To Bordeaux a great proportion of the mowers formerly came from England, and now practically the majority comes from America; the advantage in quantity sent is with the American makers, but my firm send several hundred mowers a year to Bordeaux Port. If we had a protected market here we could get back a better share of that trade. Our trade is well established in France and is increasing, but if we could quote lower prices we should have a larger share. Had we the home market protected we could, owing to our greater production—as already explained—give lower prices. We have had a house of our own in France for 23 years. When we first established that house the English manufacturers were doing a large share of the French trade. It was soon after the Exhibition of 1878, and the Americans had not commenced really to be an important factor in the competition. The English makers at that time did not recognise the American competition as having to come; in the result however the American competition came in strongly, and several of the English manufacturers who once enjoyed a large trade there have lost it. We have largely reduced the cost of our machines by annually increasing our output, and are selling binders at the same price to-day as the best Canadian and American machines. 645 So far as the British competition is concerned, my firm and Hornsby and Sons—the only firms in England making self-binders—are holding a certain share of the British trade in binders at an equal price with the Americans and Canadians.

Comparison of English and American Machines

The American mowing machine is lighter in build, but it does not need less horse-power to pull it. It is rather a strange fact that a light mowing machine in a heavy tangled crop goes much heavier for the horses than a machine of a somewhat heavier build. The English machine is a more durable machine. In the mowing machines there is some difference in price. The best mowing machine that we manufacture is sold about £1 dearer than the best American machine, but it is recognised by most of the agents and by the farmers that it is worth the difference in price. There is a certain amount of fashion in harvesting machinery, and some credit is due to pushing the trade by advertising and keeping the machine always to the front. The cost of a binder sold in Great Britain would be the same as if sold in the United States, if there is any difference it is in favour of the American farmer. The argument is often raised that if a duty were put on American machinery the English manufacturer would try and put the duty on to his own price and thus get a higher price for his machinery. As against that the fact is that the American machines during the stress of great competition were sold cheaper in America than they were sold in England. Home competition would always level the prices as it does in America now.

646 **International Harvester Co. Amalgamation**

There was an amalgamation in 1902 of five large American houses—D. M. Osborne and Co. have since joined—brought about by intense home competition in America—the McCormick Co., the Deering Co., the Plano Co., the Milwaukee Co., and Warden, Bushnell and Glessner, under the title of the International Harvester Co., with its head office in Chicago. The undoubted intent of this amalgamation was firstly to stop the severe competition that existed in America and in other parts of the world, especially the competition between two of the firms in the amalgamation. Considerable economies could also naturally be made in the respective manufacturing, commercial and administrative departments. The capital of the International Harvesting Co. is from 20 to 25 millions sterling. The competition experienced with the McCormick, the Deering and the Plano sections of this combine is very severe in Great Britain and Ireland, and no expense is spared to obtain the trade. Travellers and experts attend markets all over the country, and although feeling the competition one cannot but recognise the efficient manner in which the territory is canvassed. One is naturally inclined to think, although on the best of friendly terms with our American friends, that their intent is to overrun the British market and thus naturally prevent the British manufacturer from increasing his business and becoming a more serious competitor in the neutral markets of the world. Their combination in their own country will eventually enable them to make good profits, which will further enable them to quote very low prices out of their country.

Conditions of Manufacture

647 American and Canadian makers have no great advantage so far as the purchase of materials or anything which goes to the manufacture of harvesting machinery is concerned beyond the advantage in the works. They have up-to-date machinery and a tremendous output, which certainly assist in the cost of production. The wages are higher, but on the other hand the production per man, with the machinery which he is using, is greater in proportion than is the production of the British working man with the class of machinery which he is using. The American maker does not put more labour cost into an individual machine than the British maker does; he puts less.

Supply of Parts

In our trade we have a much larger proportion of work done in supplying parts of machines than is the case in most other trades. There is a natural wear and tear that must be repaired, and with a large annual sale of machines the sale of extra parts is proportionate. In no other branch of the agricultural machinery industry is the supply of repairs parts so great as in that of harvesting machinery—the annual requirements of an ordinary mowing machine averaging, I should think, 10s. Therefore the gain of this trade to the American is a perpetual loss to the British manufacturer in reality, for although a few of the parts of American and Canadian machines are made and sold by one or two English houses, the business done does not amount to much value.

Labour

Wages

648 Proportionate labour cost in our trade has diminished. To adopt the policy of an increased production in face of the severe American and Canadian competition required a certain determination on the part of my firm. We had to considerably increase out-buildings and shops to put down special tools and plant and to standardise our machines as much as possible, with the result that we were able to reduce the cost of production. Our men however were able to produce a greater quantity daily, and their weekly earnings were even greater than before. Each succeeding year has proved that with an increasing production, although the prices per piece may be reduced, the workmen's earnings are proportionately higher.

Transport

Steamers now run from Chicago through the Lakes and take goods direct to Hamburg, Odessa and other European ports to which they have a large quantity of machines to ship, but the cost of carriage of American and Canadian machines to the United Kingdom is an item which would scarcely press them at all so far as competition is concerned. The large number which the Americans make greatly decreases the cost of distribution per machine. The Chicago manufacturer, in consequence of the large shipments which he sends, is able to reduce the cost of laying down a machine in this country, whereas we who have an arbitrary railway rate from our works to any given point receive no concession whatever. But it must be remembered that all the American makers who have warehouses in London have the same difficulty to contend with as ourselves once they get their machines here. They get an advantage when the machine is required for Aberdeen, and they can ship it direct, and they are able with their large quantities to get lower and lower freights according to the quantity which they ship, whereas here whether we are going to ship 10 machines or 100 we have to pay the same railway rate. For these reasons the freights on Canadian and American machines afford us no preference whatever in the home market.

649 **Duties**

A 10 per cent. duty on American machines in the case of ordinary harvesting machinery would in the end be to the advantage of the farmer. A 10 per cent. tariff on American goods coming into this country would put say £2 on an imported binder. A 5 per cent. duty on machines from Canada would give a preference to the Canadian makers and this preference is worthy of reciprocal treatment. We recognise at once as manufacturers that the cost price of the American binder is immediately raised £2. We should manufacture a much larger quantity than we are manufacturing this year, and sell them at say £1 less than we sold them last year. As our cost of manufacture decreases with a greater output, we should no doubt be prepared the year following, by obtaining a greater share of the trade, to manufacture in still larger quantities and drop the price another £1. Price is certainly a great factor with the farmer, but not in every case. The questions of manufacture and of design are considered by many. As a manufacturer I am prepared to pay the duty in order to get into the foreign market. We have to do it all over, as the only way in which the manufacture of harvesting machinery in a large way can be carried on at a profit is by obtaining a share of the trade in those markets, but I claim that we ought to enjoy preferential treatment in return for our Free Trade market, such as is given us by France; the duty on our machines into France is 9 francs per 100 kilos. and on American machines 15 francs per 100 kilos. This is only just and right but Germany lets in American machines at the same rates of duty as ours. A preference like France rightly gives us would materially help us all the world over. The imposition of a 10 per cent. duty would not stop the Americans from trying to obtain a share of the trade, while it would certainly give the British manufacturer an incentive

650 to increase his works to such an extent that he could better fight American competition. I have not the slightest hesitation in saying that with a production of say 12,000 to 15,000 machines, my firm or any big firm in England would not fear American competition, because the cost of production would come down very much. Capital would also follow more easily into the industry, having a better security. With a moderate safeguard and preferential treatment from the Colonies I am convinced that we can get back a greater share of the trade than the makers of the United Kingdom have enjoyed during the past decade. As a reason for this statement I will give evidence from the experience of my firm. The sales of harvesting machinery of my firm were as follows: in 1886, 2,357; 1896, 4,294; 1900, 6,409; 1903, 7,372; 1906, 9,227. By the introduction of up-to-date mechanical appliances and by systematised manufacturing and commercial organisation we have been able to very sensibly reduce the cost of manufacture. There is no class of agricultural machinery that lends itself so well to repetition work as the manufacture of harvesting machinery. We have thus been able to reduce our selling prices and compete to a certain extent with the American and Canadian makers in home and neutral markets, but if we had the home market safeguarded by a small duty we should be induced to further greatly increase our output and offer lower prices for both the home trade and for the trade in the neutral markets. I have not the slightest hesitation in stating that with a home market safeguarded, harvesting machinery would be sold by British makers cheaper to farmers than at present. The "dead charges" in working this branch of industry are not proportionate to the amount of sales. As a matter of fact my firm did an increase of business of upwards of £15,000 in 1903 over the business of 1902 for a less cost of "dead charges," and in 1906 an increase of £28,000 over the business of 1905 for approximately the same "dead charges." 651

Who pays the Duty?

My experience is that in the case of every foreign duty put on in Germany, Austria, or any other country, the manufacturer has to pay it; to keep his trade he begins by paying half of it, and ends by paying it all, or he loses his market. Every firm interested in the manufacture of agricultural machinery, from steam engines and threshing machines down to ploughs generally, has to help to pay the duty in most continental countries, if not, trade is lost. If machines had to pay an import duty here the Americans would pay the duty and they would come in (I will say as a matter of argument) all the same, but we having dropped our price to the farmer, and the American cost price having been raised £2 might prevent them from following us. The farmer might thus buy English-made machines cheaper than any he bought before, and the American would pay the duty and assist our taxes.

WITNESS No. 268

MR. JOHN McLAREN, M.Inst.C.E. 652

(Representing the Midland Engine Works, Leeds; Makers of Agricultural Traction Engines and Electric Lighting Engines).

State of Trade

Our trade varies according to the prosperity or otherwise of the different Colonies that we deal with. We do not do much with foreign countries. We are barred out of most of them by their protective tariffs. Except in the case of the United States, we could not do much at this immediate time, even if the tariffs were taken off, because ours is a trade that has to grow with the requirements of the country. Our export trade is mainly Colonial; still we have shipped to almost every country. We send traction engines to the Argentine Republic, and electrical generating engines wherever the tariff will let us in. We have shipped some stationary engines for that purpose to the Argentine. I can only speak as to exports of fully-manufactured goods. There has been an increase to the Colonies, but a decrease to the Continent. We have two special lines, and they are very dissimilar. One is the electrical section, in which we make very large engines, practically exclusively for this country, and that has been falling away. We prefer to be slack rather than accept the home prices that have been going lately, and that is owing largely to foreign competition. We also make large engines for power, but do not export any, and steam road rollers. There has been a large trade done in these lately in England. We make electrical machines mainly for the home market, and have to compete with the Americans both for the engines and for the electrical machinery. The Americans
653 are pushing their way in, and the Germans too. We make about the same description of traction engines that Fowlers do; they differ only in details, and our prices are about the same. We make both compound and single engines. The makers of tank locomotives have been very slack; ironworks and collieries have been doing badly, and as there has not been much demand for locomotives, that has made a great difference. Near by us there are four firms and out of these four we are the only people who have been tolerably busy, but then we only employ a small number of men, something over 200. We are working full time, and have been all along, because we are making a special article; but that is exceptional. Our neighbours next door and across the street have been working short time. The engineering trade of Leeds is the reverse of prosperous; there are thousands unemployed. Up to the present we have been fairly steady, but trade has been declining. Now there is some little sign of revival. The decline is due to two causes—the competition of foreign countries and the general depression and inability to buy. About four years ago we sent about £10,000 worth of steam ploughing machinery to Germany. In the last three years we have not sent £500 worth, though now that there is so much English stuff out there, when they find out that the English lasts longer than the German we shall probably get some of our trade back again. The Germans are now beginning to supply themselves with ploughing engines, though for many years they came to England for them. We can compete in Germany although our prices are higher, owing to the greater durability of our engines.

Mr. J. McLaren

654 **Causes of Change** I attribute the change in the state of trade of our district to two or three causes. The first is the collapse in South Africa after the war; things have been at a standstill there pending the settlement of the Chinese labour question. Then the drought in Australia, while it helped us in one way, hindered us in another. Lastly, the bad seasons at home have affected us very injuriously; there has been a series of them.

South Africa They are using traction engines in South Africa very much more largely now, and we have sent out a large number both previous to and during the war, mostly to the Transvaal and the Orange Free State.

We lose sight of our engines at the port of debarkation, as a rule, when sent to South Africa. They are used largely for mining work, but we have sent them to Natal and to other places for direct ploughing. We have sent a great many engines abroad for hauling ploughs by direct traction; some have gone to the Transvaal and some to Natal. but whether to the Orange River Colony I cannot say, because our agents take care not to let us know too much about it. All we know is from the port marks, which are given to us by the shippers. We have not done the same as Fowler, of Leeds—gone out there and looked round to try to get the trade—but we have sent accredited agents out, and established a small firm, who have handled our engines there as merchants. We have made them specially for the South African roads, with very wide wheels and large water-carrying capacity. Some of the traction engines weigh 20 tons empty; the Germans do not ship that class.

655 **Australasia** Australia and New Zealand have been our principal Colonial markets. We have done a little with India and the Straits Settlements. The Americans get into both the Australian and New Zealand markets, but they have not been very successful in New Zealand. A preference would certainly enable us to hold the trade.

South America The Americans ship largely to South America, sending hundreds of traction engines a year to the Argentine—a very much cheaper article than we should think it worth while to send—and they pretty well regulate the price. We have to come down as near to the American price as we can; still I think there is a preference given to English engines.

Canada We have no demand for our goods in Canada; they supply themselves. There are some pretty large traction engine manufacturers in Canada, and they seem to make cheap engines that answer for that country fairly well.

United States In Iowa. Minnesota, and other parts of the United States, where you used to see twenty-five ploughs all in a row, they use steam very little, and we are effectually barred out from America by the duty.

Steam Ploughing Steam ploughing is not taking the place of horse ploughing in this country. It is dying out here because there is no encouragement to cultivate land. The price of cereals is so low that the land is being
656 laid down to grass and not very much is ploughed by steam, but still some part is ploughed. The steam plough is cheaper than the horse plough for the quality of the work done and for deep work, but not for ordinary light work. It does not work out dearer in any case, and has the advantage of being more speedy, so that if the land is in good order you can get over it more quickly and ensure the ploughing being done at the right time. The farmers cannot afford the initial outlay; besides they are obliged to grow corn for fodder and for the rotation of crops.

Steam ploughing is only possible where the fields are large; and small holdings will do away with it very largely. It would not pay a small farmer to have a steam plough. Formerly two or three farmers would combine together and have one between them, but since corn has become so cheap they have not been buying any new tackle, and as it has become worn out it has been put aside. In South Africa traction engines are pretty successful in hauling six or eight furrow ploughs behind them over the fields. We also sent some to Italy a good many years ago. The ideal system is to have two engines, one on either side of the field, hauling the implement back and forward between them by means of a steel rope. Where there is a great deal of work to do, and only little time, it can be got over with the double engines quicker than by direct traction. It is thought to be more expensive, but we have sent engines out to South Africa which cultivate for 3s. 6d. an acre, and that cannot be beaten very much with any style of tackle. The Boers, it is true, maintain that with oxen they can do it for 1s. 6d., but they cannot do it so quickly.

657 **Special Engines** The Americans make a cheaper engine than we do, but much lighter and more flimsy; they do not expect them to last more than about three years. We sell at about their prices in South America. It is a special engine, and you cannot very well compare it for price with the engines sold in this country. We also make a specially light engine to compete with their light engines of 36 I.H.P., only weighing about

Straw as Fuel 10½ tons, specially constructed to burn straw. In the Argentine Republic straw is of no value; there is no other fuel to be found. They can raise steam with straw about as quickly as with coal, and maintain the same pressure all the time when working. It requires constant feeding, as it is all put in loose, forked in by hand; grass and reeds would burn in the same way. A ton of straw is equal to about a third of a ton of coal for steam raising. We can evaporate about 2½ lb. of water per lb. of straw. Straw is used when the engine is travelling. A tender wagon follows it. There is no tender in the strict sense of the term—simply a platform at the back of the engine.

Output There is plenty of competition in our particular line, but I cannot speak for reaping-machine makers or for plough makers, who are victims of American and German competition. The Americans come over here and sell their reaping machines at a much lower price than they can get for them at home. They make their profit out of their home market. It is a great advantage to make a large quantity at a time. The trade charges are a heavy item in prime cost. They are usually distributed over the normal output of the factory.

If the output can be increased beyond the normal amount upon which the trade charges are apportioned 658 the profit on the excess of the normal output is very much increased, as it has no share of the trade charges to carry. In other words, the whole secret of cheapness of production is to keep your factories fully employed.

Effect of Tariffs on Production

Foreign tariffs tend to the efficiency of production in foreign countries by securing their home market to them, enabling a better profit to be made in their own market, and so to sell at a less profit or without a profit (except their trade expenses) abroad. It does not affect me at all, but the agricultural implement trade, for instance, feels it very keenly.

Foreign Productions in England

British municipalities only show preference for English manufacture if it is cheaper than the foreign. Some engineers who advise municipalities prefer British goods and get them in spite of the higher prices, but as a rule the lowest tender is accepted, even though it takes the order out of the district. Thousands of tons of tram rails, for instance, come into the country. The working man does not yet perceive what he is losing, but he is beginning to see it. That is one reason why I have come to London to-day to give evidence, because I feel sure that if the British working man was made aware of some of the facts that the Commission will be able to put before him he would be a Protectionist. He is a Protectionist now in the matter of selling his labour. A change of opinion is noticeable, particularly amongst business men, but to some extent among the working men too. Foreign steam road rollers have not been sent over to England to any extent; the French sent some large ones to the Manchester Show in 1869, and I have heard of one 659 or two since, but nothing of any importance. The Americans are sending over some very light rollers for asphalting; it seems to be a special design that has been found suitable in the States, and has been adopted by some of the English asphalters, but there is no considerable trade done in imported steam road rollers.

Labour and Wages

The rate of earnings of workpeople in our trade during the last five or six years has been fairly steady. There has been no radical change, though the tendency has been upwards, and since we began business in Leeds 28 years ago wages have gone up almost 30 per cent. Unskilled labour has not risen in price owing to the large influx of men from the land; there is no other reason. The fields that used to be ploughed when wheat was at 40s. to 50s. a quarter are only grass now, and the young fellows who are not now wanted in the country come in flocks to the towns and go to the railway stations and get porters' and horsemen's jobs, and compete for all the unskilled labour in the towns, thus keeping down the wages of the town-bred men. We do not employ a larger proportion of unskilled labour than we did. Machinery is always improving so as to enable an unskilled man to do what he could not have done years ago in the case of things manufactured by the gross, but that does not apply to the same extent to the better class engineering.

Commercial Travelling

Commercial travelling is done better abroad than we do it. We have stuck too much to the idea of sending out salesmen while they send out experts with commercial instincts, and that is decidedly the best thing. The commercial instinct is very scarce, and very difficult to get, more particularly accompanied by expert training. Expert training seems to kill it, but the Germans manage to combine the two by a 660 process of selection, which is no doubt open to us, and those among us who do it benefit by it. The American system also seems to combine the two very well, but it must be understood that these are all picked men. Here we employ more the man who has plenty to say, and who can put a plausible story before a customer, although he may not be able to so well describe the merits of his machine.

Materials

We use all home-made materials, Scotch or Consett steel boiler-plates and Staffordshire or Yorkshire bar iron, so that the quality of the material has not deteriorated to any considerable extent. We do not buy common material. Probably the lower grades of iron may have deteriorated, but our class has not. We do not buy largely enough to be able to say whether we benefit at all from dumping, as we are not like people who buy thousands of tons at a time. We do not buy plates from Germany. Swedish iron enters largely into the manufacture of the best steel. It is a pure iron that is used for the manufacture of cast steel for tools. We do not use any Swedish bars ourselves—only what we buy manufactured.

Local Rates

The increase in local rates, owing to the taxation on machinery, is a very serious addition to the cost of manufacture. They have recently increased our rateable value about 300 per cent. We are appealing against it as they have taken our machinery into the last assessment. We have added to our buildings and machinery. but we have added to our rateable value as we have gone along. The manufacturers of Leeds are fighting the whole assessment.

Rates in Germany

A German maker of agricultural machinery has expressed his astonishment to me at the amount of 661 our local rates (6s. 8d. in the £). He reckons his Imperial and local taxation combined at 10 per cent. of his income. In Germany there is an understanding that local rates shall not exceed double the Imperial taxes in amount. In the town in which he lives an income of £1,000 (20,500 mks.) pays 600 mks. in Imperial taxes, and 180 per cent. on this = 1,080 mks. in local rates. The rates are levied on trades, public houses, buildings, land, &c. On industrial buildings, by an old law, the rate is 2 per cent.; on dwelling houses, 4 per cent. In assessing houses and factories, position, accessibility, &c., are taken into account. Factories are assessed by a sort of County Committee of traders and business men. No one complained of these rates, but since 1898 a rate of 4 per cent. is leviable. My correspondent regards the rating of our machinery here as simply monstrous, and a direct interference with trade.

Technical Education

Technical and commercial training is decidedly an advantage in producing superior working men. In our district we have excellent education at hand. The men go to the classes in the evenings. With many of the pupils we make a break in their indentures. After they have been working for a year or two in the shop we let them go to the Leeds University, and then they come back again. In that case we bind them for five years. In the case of an ordinary pupil, who has had a good public or grammar school education, we have them for about three years. They go away for two years for the ordinary course, or three years

662 for the degree course at the University, and come back better workmen. Generally we give them a couple of years in the shops, and that pretty well finishes their manual work. They go away for technical training, and come back into the drawing office. A lad who has first of all done the manual work, and then gone through the technical classes and comes back into the drawing office, is a much more efficient workman than a man of the rule of thumb. This applies rather to persons who will be managers than to the actual mechanics and workmen. We give the mechanics facilities for evening classes, but the mechanic who attends them and gets the theoretical part of his trade is not an better than the many who has the mechanical instinct. It depends upon that more than anything else. The man who has the mechanical instinct is decidedly better for the theoretical training, but the man who has the technical training without the mechanical instinct is not as good a workman as the man who has the mechanical instinct without the technical training. In other words, a man ought never to go into the trade if he has not the instinct. The number of square pegs in round holes is the difficulty in every trade.

Trusts

A combine would not be any disadvantage to the working man, though no personal advantage to him in any way. We could not grind him down, for he is quite able to take care of himself. A combine is only possible in one particular trade. You could not combine the agricultural and the marine engineers, for instance, nor locomotives and textiles, so that, although there was a strong combination in either one or the other of those trades, the workmen would be free of the bulk of the labour market. The employers could not do without them, and the trade unions are very powerful. They can protect themselves against 663 any unreasonable demand on the part of the employers. It would be possible to form ourselves into a great trust and charge higher prices, but it would be scarcely practicable or likely, because there is always somebody that wants to be outside and to have a free hand, and unless you get everybody in it is no use making a combine. Combines or trusts are very injurious to the small and struggling men endeavouring to start in the trade as masters with limited capital.

Foreign Advantages

Foreign countries have no advantage in respect of processes of manufacture. Their advantage is in lower wages and longer hours and low railway rates to the seaboard. German wages are much lower than ours, but the Americans are higher. I know about the German workmen, because I have been over there a good deal, and should say that where we pay 33s. for an ordinary workman, in Germany they would pay about 23s. The British workman is on the whole a much better hand than the German, but the German sticks better to his work. Once, walking through a German works with the proprietor, though perhaps the men were putting their very best foot foremost, they certainly seemed to be working fully as hard as our men. They will not do more ; on the whole probably they would do less per hour, because there is not such good supervision as we have here. The works particularly in my mind was a large factory making agricultural implements, drills and that sort of thing, and on their standard work they were all on piecework. A first-rate moulder would be earning about 4s. a day, and it did not matter very much to the manufacturer (except that the moulder occupied so much space in his factory) that he did not work very hard. The work turned out 664 of the foundries (I am speaking now of that special department) was greater than would be turned out of a similar foundry in England, because this place had a particularly good foundry system, and repetition work for drills. They moulded the parts of the machine by hundreds, and I never saw an English moulder put down as many boxes on the floor as these men were doing. They were working 10 hours a day (60 hours a week) for 4s. a day at plate moulding. We have difficulty about plate moulders in this country. The unions put difficulties in our way as much as they can, and that means increased cost of production.

Costing

Our methods of checking, accounting, &c., to arrive at prime cost are as good as the foreigner's.

Proportion of Cost

The proportion of the different elements of absolute cost in our business is: materials, 47 per cent. ; wages, 33 per cent. ; fixed charges, 20 per cent. on the agricultural section of our manufacture.

Railway Rates and Freights

Railway rates are very high and very anomalous, and the shipping rings are very hard upon us. We can only ship to South Africa by Conference boats. There are tramps and other boats ready to go, but then we should lose our rebate. It is true that in spite of combinations neither the railway nor the shipping interests are dividing much money amongst them ; they are both complaining. Although their rates are very high it is a very poor living for those who have money in those enterprises. Our rate of freight to South Africa is as nearly as possible 35s. a ton ; from here to New York about 12s. 6d. We could ship for 12s. 6d. from New York to South Africa, but it would not pay us to do that. We should get our cases knocked all to pieces by shipping and transhipping. A man in the trade who sends goods that way told me 665 the rate was certainly not more than 12s. 6d. a ton ; that was for rough stuff, like iron in bulk, 200 or 300 tons at a time. In our case it is very seldom we have 100 tons to ship ; ours is valuable stuff, and if they let a case fall overboard it would be a big loss which they would have to make good ; they take that into consideration in fixing the rate. The rates by the Conference boats to the Argentine are 35s., and there are very good return freights, so that they do not seem to be influenced much by that. They keep the rate up by keeping out all outside boats—making a ring. Here is an illustration of transport rates by land and water to foreign countries. Once we had to send an engine to the north of Italy, and the rates from Hull to Genoa would not be more than 30s. a ton. We sent it by water to Hamburg, by our customer's orders, and it went from Hamburg to near Genoa by rail, so that there must have been very little left for the railway journey. On the Continent they must have a very low rate to make it worth while to take an engine all the way by rail from Hamburg to Genoa.

Return Freights

The increased exports of British manufactures to the Colonies, which might result from preferential tariffs, would overcome the difficulties alleged to exist with regard to return freights, but there is not much difficulty about homeward freights. The bulk of trade is in this direction, and ships go out in ballast for the return freights. This would be equalised by improved fiscal policy.

Duties

A duty on machinery for electricity would help my trade very much.

Effect on Prices **Effect on Production** **Effect on Wages**

666 Moderate duties would not raise the price to the home consumer very much, at least not unreasonably. If it raised the price so that the plant could not be worked at a profit that would be raising it unreasonably. But a couple of thousand pounds on a capital expenditure of £20,000 or £30,000 is not a serious matter. Instead of dearer we could possibly sell cheaper, but would endeavour to get all we could, though our competitors in this country would see that we did not get too much and prices would not rise to any considerable extent. We should simply have the competition among ourselves, instead of having it divided between ourselves and the foreigners. The important effect of the duty would be that it would give greater employment for our factories, and thus decrease our cost of production. If we got rid of competition among ourselves we should be able to give the workpeople better wages. In other words, if we were making a good thing we should not object to the men having a share in it. The men are fairly treated, as a rule ; if not, they can very soon put pressure on, and they do. If duties were put on we should have the advantage of getting the British work done in British workshops, and supporting our own people instead of supporting other folks who take no interest at all in our affairs, and bear no share of our burdens, local or Imperial. It would also mean better wages for the workpeople which would more than compensate them for any slightly increased cost of living.

Preference

667 The demand for electrical machinery would increase in Canada if there was a preference ; it would give us a better chance in England as against the Yankees, but from an engineering point of view Canada is, or soon will be, in a position to supply herself. I do not look for any special development in Canada for our own particular trade, though we do not fear any competition from them on this side. The higher rate of wages will prevent that. Preferential treatment in the Colonies would help our trade decidedly against all competitors. I cannot say that we have lost any branches of trade through the operations of foreign tariffs. We find the competition at home from the Americans and the Germans very keen, especially in electrical work.

[For Supplementary Evidence by Mr. McLaren's Firm, see Section V. (paragraph 1198 et seq.)]

WITNESS No. 269

THE LATE MR. J. E. RANSOME

(Chairman of Ransomes, Sims, and Jefferies, Limited, Orwell Works, Ipswich ; Engineers).

We manufacture steam engines of all kinds, steam threshing machines and ploughs, field implements, cultivators, and a separate branch of horticultural machinery, which is principally lawn mowers.

State of Trade

668 We have to contend against American machinery in foreign markets and also in the home market. A large quantity of American agricultural machinery is imported into England, but not much from any other country. Not many steam engines are imported. We have certainly increased our home and foreign trade considerably, and there is no doubt that other companies have also increased theirs. Our Colonial trade has not increased much. We sell a good deal in South America, Russia, France, India and the Colonies, in fact almost all over the world. The proportion per cent. of our sales is 43 home, 44½ foreign, and 12½ Colonial, on an average of 5 years. The state of the trade altogether may be said to have been satisfactory. We have not suffered except in those countries where the duties are heavy, and where we are now unable to do anything whatever. We do not send £10 worth of stuff in a year to either the United States or to Canada ; it is absolutely impossible on account of the tariffs. In England the volume of trade has increased, but not to the extent that might have been expected, owing to the fact that some arable land has been put down to grass. During the last 4 or 5 years business has increased about equally in the home and foreign sections. There has not been much up or down in either one or the other. The Colonial trade has not increased so much. You cannot force a trade on a country that has not the money to pay for it, and that has been the state of Australia during the last 6 or 7 years owing to drought, and of South Africa during and since the war. The improvement in our trade has been due to the diligence and work put into it. Large quantities of machinery have been sent into South Africa in the hope of the revival of trade there, so there is very little doing. The Australian market is reviving again. Owing to a record wheat crop this year things are brightening up very much. 669

Competition in the Colonies

Some portion of the want of expansiveness of our Colonial trade is due to keen foreign competition. America has been very active in Australia and South Africa particularly, and has taken much trade which otherwise we should have had. Large quantities of reaping, binding and mowing machines have been made in America, and the countries being more or less similar in character a machine suitable for America has been found suitable for both Australia and Canada, though Canada makes for herself to a very great extent. Canada exports to our Colonies and to this country.

Exports

We are not doing so much in Germany as formerly. We once did a considerable trade in engines and machines, but the manufacturers there take English standards which we have been at great expense and trouble to produce and make abject copies of them, and aided by their cheap labour and longer hours of work and protective tariff, they have greatly hindered our business in Germany, and even more in Austria-Hungary. The Austrian implements and machines compete with us in all Continental markets.

Profits

The trade in agricultural machinery, judging not only from our own business but from the number of hands employed in other works, &c., has very greatly increased in volume and in value in the last 20 years, but profits have declined and we have to do a larger amount of business before we have paid our

670 trade and current expenses, than 20 or 30 years ago. All branches have been less remunerative, and more
business has to be done for the same amount of profit. The steam threshing machine has become especially
unremunerative, because it has been constantly increased in size and perfection to meet the markets in
different parts of the world. The cost of material has also greatly increased owing to the rise in price of
wood in the last few years. Profits began to decline 20 to 25 years ago and have been steadily declining
since with every prospect of a continuance.

Technical Education

I am a strong advocate of technical training. Though we do not suffer much from the want of it still it is not half so good as it ought to be. Our manufactures are more perfect than those of the foreigner and are copied by them. The public credit some of our foreign rivals with the great amount of intelligence which they have brought to bear on the production of manufactures. But it comes extremely hard on a business like ours to have our machines copied, and it does not show that the foreigners are ahead of us. They have a perfect model, a cheaper rate of wages and longer hours, and it is very easy for them to compete.

Local Rates

Local rates are very heavy; in our town they have now gone up to over 9s. We have been rather extravagant lately in having electric light, tramcars and other improvements. They are necessary but very costly.

Costing

We do not suffer from want of knowledge of our own costs. We are very careful in analysing all
671 our accounts and figures.

Commercial Travelling

In commercial travelling the Americans and Germans are extremely active. The Americans are a long way ahead of us and are extremely well informed about the articles in which they are travelling. That is especially the case in machine tools, which are largely used in this country. We do not suffer much because it has been a necessity of our business to make an actual study of the wants of the people on the spot and know exactly what is necessary for the agriculture of each separate country.

Price Lists

There is not much difference between us and the foreigners in the system of quotation of prices. We take care to let them know what we want for our goods. It is a great nuisance to a foreigner to have to turn hundredweights, quarters and pounds into kilogrammes, and in our catalogue we make the translations for them.

Standardisation

There is no doubt that the adoption of standardisation as much as possible would be the right system,
but it affects bridge builders and civil engineers in their designing more than it does our own particular line.
It is said often in the Colonies that the Americans maintain their business largely because of the great
facilities their standardisation of wearing parts affords for repairs, but we are not deficient in that respect.
Every wearing part belonging to our machines is lettered, numbered and priced separately. The different
parts are made to standard patterns from one actual size and the thing that fits one machine will fit another
672 and the same thing can be had again this year, or next year, or 10 years hence if wanted, and it will fit
properly. There has been such a fuss made by the Americans about this point that one would almost fancy
they were the originators of the scheme, but we have had it as long as I can remember and indeed long
before I was born.

Raw Materials

The principal materials, manufactured or partly manufactured, which we use are cast iron, iron and steel bars and plates and a good deal of wood, grown in this country and in America, Norway and Sweden, together with coal and coke. Our materials, with the exception of wood, come from this country. We have lately bought a certain amount of bar iron in Belgium and Germany owing to the lower prices, but we are taking care that the quality we get is right. They manufacture more cheaply owing to the longer hours of the workmen and the lower rates of wages. The men work 60 hours to our 54, and taking an average, their wages are 10 per cent. less. They are not troubled with trades unions and strikes as we are in this country.

Dumped Bar Iron

The foreign countries from which we obtain bar iron supply the English market at the very lowest
possible price in order to increase their own output. It is impossible to say what they get out of the price
they charge us, but it is not much. In some cases there is a difference of 10 per cent. to 15 per cent. between
the price they charge us and the price to their own manufacturers. They have also advantages in the shape
of low railway rates to seaports. We are quite satisfied with the quality we get, otherwise we should not
673 think of buying it. It would not answer our purpose, as an old-established firm of over a century's standing,
to put anything but the best stuff into the market. We have to stand by everything we turn out and we do
not buy anything that does not answer thoroughly well for our users. It is very difficult in one factory to have
two classes of goods. If you educate your men to produce a really good article it is very difficult in that
same place to allow of an inferior article being turned out. There are some classes of goods that do not require
the same quality of iron that others do. For instance, you would put into a steam engine different material
from that put into a harrow; there must be a difference in qualities used, but you must keep one standard
of excellency in a works and I should be very sorry to see an inferior standard running alongside a good one
in our works; I should be afraid the whole thing would go down.

Dumping

We suffer much from the dumping of lawn mowers and from the low figures at which they are quoted. There are thousands of small, light lawn-mowing machines sent into this country every year at prices which will not more than pay for the wages and material. These machines will not last; they are sold because people want cheap things, but at the end of the year they could not be repaired. By that time the purchaser has been educated up to wanting a machine of the right kind, and he will buy a good one. He spends a sovereign for a foreign machine, when for 25s. or 30s. he could have a machine that would last. Many different patterns are sent by different makers. Machines are sold retail at 12s. and to the wholesale people at about 9s. apiece. These are chiefly low-quality machines, the better quality not being sent in at these low prices. We cannot manufacture a machine that could be sold at anything like that figure. It is an impossibility, because the wages and material would cost as much as their price. We do make some very inexpensive machines, but cannot come to these low figures. 674

Trusts We have had very little experience of trusts. One or two attempts on the part of Americans have been made to combine our trade with other similar trades in this country, but these have failed and will fail. Large trusts are generally means for getting a larger amount for your business than it is worth. They are greatly over-capitalised and the shareholders suffer in the first place and the business itself in the end.

Transport We are prejudicially affected by low freight rates abroad. The rates from New York to Cape Town are from one-half to one-third the amount they are from London—the rates from London to Cape Town are about 31s. up to 61s. a ton for pieces of not more than 5 tons, and I understand from a letter from Queenstown, South Africa, that the rates from America have gone down to 15s. and 16s. a ton. The low rates in America compared with the high rates in this country are partly due to the fact that a certain line—the Prince's—outside the ring is fighting the Union-Castle and Houston Lines, which are in the ring, and therefore the Yankees in the meantime are getting the advantage and are sending to our own Colonies much cheaper than we can send from England. Four hundred tons of galvanised iron have been shipped direct from Manchester to New York and thence to South Africa at 20s. a ton freight, while the rate for direct shipment from the United Kingdom is 42s. 6d. The distance is about 600 miles less from London or Liverpool to Cape Town than from New York and the shorter distance costs three times as much money. The rate from 675
America is a fighting rate and an exceptional one and we suffer from it. During the nine months of the 10s. rate last year, enormous quantities of ploughs and small agricultural machinery were brought over to the Cape ports; in fact the market is now completely gone. We have one of our travellers over there and he says the trade is very dull owing to the large and heavy stocks all over the country.

Foreign Tariffs Foreign tariffs tend to the efficiency of production in foreign countries by securing the home market. It is the old story that the larger number of machines you make of any one kind in the year the cheaper you can make them, and if the foreigners get their own market and ours as well it gives them a great advantage, as the great profits they make in their own countries enable them to sell here at low prices. No doubt it is greatly to the advantage of foreign producers to have an open market like ours to which they can send any extra stuff they make; it enables them to make a larger output. In Germany the import duties affect us considerably and with Austria-Hungary our trade has almost stopped. There were, roughly speaking, 800 sets of steam threshing machines exported annually from this country to Austria-Hungary some 20 years ago, and now not above 10 per cent. of that number. The duty is excessive; it is about 25 per cent. and they are proposing to make it 35 per cent. It is impossible to compete against that. In Russia too we had a very large plough trade at one time but practically it has all gone; there is a 27 per cent. duty on ploughs and that, with the carriage from this country more especially to Odessa, is enough to stop any trade, while it has enabled them to start works and factories there.

Duties 676 It is said we should feel the competition much more if there were Free Trade all round. Whether that be so or not it is not easy to say, but at least we should feel that we were having fair competition then, whereas at present it is extremely unfair. We have work taken from our workmen by the importation of machinery made in the United States and Germany. In the long run it is not to the advantage of those who buy in this country. We should not be advocates of Protection if the whole world would adopt Free Trade, but, as we cannot have that, we should like some arrangement by which we could save our trade with our own possessions and get better treatment from foreign countries by being able to offer them something in return. A duty of 10 per cent. on seaborne material would not hurt us in the long run. At first we should feel it, but it would give increased confidence to our English manufacturers and certainly they would get a larger output and reduce their prices to some extent. The foreigners would still send a certain amount here. In order to get a large output they make great efforts to get hold of our market. If they once get hold of the English market and practically stop our own rolling mills, it would be very easy for them afterwards to increase their prices.

Retaliation The duty should be at least 10 per cent. against countries having a tariff against us, and our Government ought to be placed in a position to retaliate with still higher duties if necessary for the sake of obtaining a reduction of prohibitive duties placed on English manufactures abroad. We do not desire these high duties, but we do not see why a foreign country should press a heavy duty against us and we not be in a position to make an arrangement with them. Our Government ought to have an opportunity of making a bargain. 677

Effect on Prices Moderate duties might slightly raise prices, but this would not affect us very seriously. If we lose the trade of this country it is not a question of whether a man is paid 20s., 30s., or 40s. a week, but whether he will get paid at all. It is not a question of the value of the food that he will consume, but it is a question of whether he will have the money to pay for it. It is more a workman's question than a manufacturer's. It has been said that where agricultural machinery is sent abroad the British manufacturer has been in the habit of reducing the price to the foreign consumer by the amount of duty he has had to pay, but we do not do that. The consumer in Germany and every other country pays the duty on our goods.

Effect on use of American Tools We use many American tools in our works. The Americans have certainly tended to improve the English standard of tools. There are many English tools now made just as good as the Americans, but there are still many excellent American tools and the English makers avail themselves of them. A small duty on these would not prevent us from buying them. Factories which have antiquated tools generally go down. It is a very bad sign when a works is full of old tools, it does not pay to keep them.

Preference The South African Government ought to put on a strong preferential tariff in favour of our goods in the way of duty. Two and a half per cent. is no good.

[For Supplementary Evidence by Mr. Ransome's Firm, see Section V. (paragraph 1198 et seq.)]

678 Our business is agricultural to a limited extent. Our trade is in fixed engines, portable engines, traction engines, road rollers. The only portion of essentially agricultural work, one of our main items, is our threshing machines for going with our portable engines and traction engines. We are what may be called agricultural and industrial engineers, and besides the home trade we trade with the Continent, our different Colonial markets, and the Crown Agents for the Colonies.

State of Trade The total net profits in our trade in our district in relation to turnover have diminished considerably in recent years. Trade has become less remunerative all through, that is, we are doing a larger business at less profit.

The idea is that if returns increase you are prospering ; true, increase of works and the purchase of labour-saving tools and better appliances for the production of goods increase the turnover but as a rule profits are not commensurate.

Home Trade 679 We attribute the decrease in the home trade to the depression in agriculture, and the last 3 or 4 years that has been very serious. Trade has not been too remunerative. In our particular speciality we have been well employed, but the percentage of our home trade is decreasing gradually. It has decreased from 27 per cent. of our returns to 23 per cent. That means nearly 20 per cent. on that basis. The home trade has decreased as the agricultural depression has increased, though the entire volume of our output for 1903 was greater than ever before, but at a diminished percentage of profit in relation to the turnover. There have been slack periods, but as a rule we have been fairly employed. We are the only manufacturers in our line in our town, and therefore it is not a labour centre. We are obliged to keep our people employed for if they went to another town it would be a serious blow to our business ; therefore we have to work for stock at times to keep them together. That is where the need for continuity of business makes itself felt. There are large sections of our output which we can put into stock as against future orders and from September up to March, we are usually working on stock very largely ; we could not conduct our business if we did not. It is locking up capital, but is a necessity as we must keep our people employed and also prepare for our season requirements. The requirements of nearly every market vary slightly, and the effect of a market being closed to us is to leave us with a lot of bad stock. The rate of earnings of our men has increased considerably because wages have increased, and as much as possible we have piece work.

Colonial Trade 680 We have endeavoured to cultivate trade with our own Colonies, and now have our own places in India and New Zealand. That trade has gradually increased 50 per cent. 1904 is likely to follow on much the same lines. The total of the foreign and Colonial trade has not decreased absolutely in the amount, but in percentage in relation to the total the Continental trade has decidedly declined. The decrease in our foreign trade has been mainly with Continental countries. Both volume and profits in the foreign countries are decreasing—decidedly the profits.

Continental Trade We have been gradually driven out of the Continental markets, more particularly Germany and Austria. We have not much to complain of in the tariffs on the Continent otherwise, but the English manufacturer has been a pioneer in both Germany and Austria, and in fact on the whole of the Continent in regard to engines and threshing machines. In Germany since 1860 we have done a large and until recently an increasing business in portable and other steam engines, but in recent years in consequence of the imposition of high duties we are being gradually driven out of the German market, and now the trade is a comparatively small one.

Proportion of Trade The fluctuations of business are given by the proportion of our trade as follows :—

Proportion of Trade per cent.

681

	Home.	Foreign.	Colonies, India, and Dependencies.
1899	27	53	20
1900	28	50	22
1901	30	47	23
1902	26	50	24
1903	23	49	28

These figures show that our home trade percentage has gradually decreased. The volume of our trade has increased, but we are doing a larger business at less profit. Our home trade has decreased 4 per cent. Our foreign trade is decreasing gradually having fallen from 53 to 49 per cent., but our Colonial trade has increased from 20 to 28 per cent. That is nearly 50 per cent. on the original. The state of our trade is for the time being satisfactory but the outlook is not reassuring. It is not the trouble of foreign markets alone, but the competition all over the Continent which I have to emphasise.

Date of Change The changes referred to began to manifest themselves 15 or 20 years ago and have come gradually, but in the last 5 or 6 years they have been very much accentuated.

Germany Thirty to 40 years ago English manufacturers supplied the whole trade. It began with a great impetus after the Franco-German war, when we practically did all the business of the Continent. Anyone who has travelled on the Continent will know that within the last 25 or 30 years the manufacturing industries of Germany have advanced extraordinarily and have been carefully protected by a paternal Government. The duties from a very small percentage at first are now something like 15 per cent. If they remain as they are

we can do a limited trade. If they increase, which is threatened, they will become prohibitive. They 682
have developed most successfully in these various classes of machinery and compete with us in the foreign
markets. Germany and Austria were immense markets and kept half our locality going from 30 years ago
up to 15 years ago. Now they are infinitesimal markets, and are supplying themselves by increasing their
duties from 5 per cent. and 6 per cent. up to 20 per cent., and they will increase them to 30 per cent., they
say, if we cannot retaliate to stop them. If we had not an extensive market outside Europe our foreign
trade would show a still greater reduction.

German Competition in Russia

We have sea steam communication right up to St. Petersburg. It might be supposed that that was
cheaper than the railway carriage from Germany but it is not, for they give special rates to the frontiers.
Considering Germany only for the moment, and taking the market in Russia in competition with the
Germans, we ship to Riga, Reval, and a little to St. Petersburg and to Danzig, which is a German port.
Agricultural machinery is carried at a very low rate to the frontiers of Russia. Take the case of a manufacturer
like Lanz of Mannheim. He is the largest manufacturer in Germany and was originally the agent
of one of the English houses. He, with the German duty, is keeping us out of part of our market and he
says: You cannot retaliate now; you can do nothing; we shall just put duties on to keep you out, and as
Cobden's policy will not let you retaliate at all, you are at our mercy. That policy has been carefully
carried out, and he uses Russia largely as a dumping ground. The Germans are not only able to compete
with us in Russia, but in France, Belgium, Holland and Scandinavia; Russia is one of their greatest
markets apart from capturing practically all their own trade, thanks to their tariff. 683

Austria-Hungary

With regard to Austria-Hungary, our position is almost more difficult; we are practically out
of the market. Twenty years ago we were invited by the Government to manufacture there, but we
resisted the temptation. We had a large place of our own then. With the exception of one firm, Clayton
& Shuttleworth, who have been established there for many years, and are keeping up a good business, there
is practically no other British manufacturer in the Austro-Hungarian Empire. The Hungarian Government—there
is a good deal of patriotism in this—commenced to manufacture agricultural machinery some
30 years ago, and carry it to the Russian frontier free. They have a sort of zone tariff and allowed different
rebates on the exportation of goods. In fact, we were offered terms that were very tempting indeed, but
we were English, and our business was in England, and as far as Austro-Hungary is concerned we are
practically driven out of the market. It is not quite like Germany, but it will be soon. The Austrians will
export any surplus they have; their only difficulty is their want of ports. They are not yet exporting to any
large extent, except to Russia, but the important point is that they have made a beginning in exporting.
We had a fixed engine trade in Germany, Austria and Switzerland, but that has entirely gone. Even to
England the Germans and Swiss are exporting engines to a small extent. The proposed new tariff in Austria
will shut us out entirely. We are nearly shut out now. We have a place of our own there worked by a
relative of mine on his own account and we supply him with a certain amount of stock. Our trade to-day
is not 5 per cent. of what it was 20 years ago. The invitation to go out there to manufacture was given
by an Under-Secretary of State in 1885. I asked for the closing of the Government factory and he gave 684
me all promises but that. Their best work is equal to our best work. A firm like Sulzer for heavy
engines, and a firm like Lanz, and the Austro-Hungary Staatsbahn (the Government manufactory) in
portables—although the latter are not quite equal to English—make a sufficiently good commercial article,
and being a Government monopoly English makers cannot compete.

Rumania

We shall be affected by the Rumanian tariff; that country has been practically free and is one of our large
markets. They were going to put on a stiff duty, but we made representations to the Foreign Office, and
they made others which have been listened to. We are the greatest customers of the agriculturists of the
different foreign countries, and if they could only see that it was a necessity to have good machinery and not
fight against the customer who takes their grain, they would not put on a tariff.

Spain

It was the same in Spain. They were going to put a heavy duty on. We made certain representations,
and as we take sherry in unlimited quantity and all sorts of Spanish products they listened to us, and
fortunately for us, listened judiciously.

Italy

The Italians are only able to compete with large fixed engines. Tosi was a very able, clever man
but was unfortunately shot by one of his own workmen. In the first place there is a great requirement
for large engines in Italy and he made only those large engines. He had very cheap labour, and good
means of communication, but it is only for fixed engines that the firm competes. The Italian duty used
to be about 1 per cent.; now it is 12 per cent. We care nothing about that competition. Ten per cent. 685
or 12 per cent. does not hurt us, but it is the steady growth of tariffs we fear. The Italian works are
exporting to England, and put engines in at prices at which we can just compete, but very barely. In neutral
markets they are beating us. They are also exporting numbers of large fixed engines to Spain and France
—but only fixed engines. Their fixed engines, large engines for mills and that class of work, are very good
and their best work is equal to ours.

Mexico

In Mexico we hold our own against the Americans, their next-door neighbour, simply by making a
substantial article. We have been working in Mexico for 35 years. They know our engines, and the only
temptation to buy the American engine is that it is so much cheaper. The American is a very sharp fellow,
and an engine of 8 h.p. nominal in England he calls a 30 h.p. The American works on indicated horsepower
and the English makers during the last seven years have been compelled to do the same. It is
surprising we are able to compete in South America with our engines and machines, but we do and get a
better price for a better article.

Canada

Canada is imbued very much with American ideas, and a number of makers have
migrated from America to Canada. Canada for the time being is supplying its own wants in agriculture

686 machinery, and with few exceptions they are working on American lines. Our only hope is that they will want a better and more substantial article and then we must try to get into their market. The preferential duty will serve us in that, but it has not been in force long enough for any of us concerned to endeavour to work it. We do not expect that Canada would allow the duty to be sufficiently low, or that they would give a sufficient preference to allow English manufacturers like ourselves to come in. The Massey-Harris Co. make 20,000 or 30,000 reapers and mowers annually and there is no maker in England who would make half that number, as he has not a large enough market guaranteed to him free from tariff to warrant the capital outlay in plant.

India and Australia

In India we can hold our own in our particular productions, nor should we have been at the trouble and expense of going to India to establish two houses of our own, one at Calcutta and one at Bombay, if we had not felt there was a large market under British rule. This applies to New Zealand also and by the federation of the Colonies that will be accentuated if we give them the preferential tariff. They cannot manufacture themselves because their population is too sparse.

Competition from U.S.A.

America does not affect us very largely, and only indirectly. They have a 45 per cent. *ad valorem* duty on all our productions, and American competition affects us in their exports to neutral markets, *e.g.*, South America, Brazil, Buenos Ayres, and Montevideo. Chile is also another American market. To those
687 places they export a class of very cheap machinery which is bought generally by the Italian colonists, and they are able, by selling a cheap article which fairly meets the wants of the people, to exclude us. They are doing a very considerable percentage of the trade now whereas up to 10 years ago the whole of that business was in the hands of English manufacturers.

Ephemeral Machinery

Though the Americans do not make so good an article as ourselves, yet they make a cheap article which enables the Colonist to work for three or four years, and then he buys another. The great idea of the American is to insist that in this age of progress you ought not to buy an article or a tool that lasts longer than three or four years. We say that is not so. We want to put a strong article in the hands of the people that will pay for itself before it is worn out, and we believe that this is the best way of maintaining our trade. There are two kinds of trade, the trade in permanent machinery, and the trade in ephemeral machinery, and I do not think any fiscal arrangements could help us in the competition with the ephemeral machinery. We are all in business for profit, but still we have a certain reputation. I have been at it now for 50 years, and dare not turn out such machines as the Americans do ; if we did, our reputation would be gone ; in fact, we would not do it. If the times and necessity caused us a loss of profit, we should rather consider winding up than make the class of machinery which we do not think any English manufacturer could successfully compete with in neutral markets. In South America they gain the market largely by supplying cheap threshing machines. They do not thresh or dress the grain so well as an English machine by any manufacturer of repute—nothing like it. In the exported grain, as in India,
688 6 per cent. of refractory material is allowed and they leave that 6 per cent. in. If the Colonist wants to purchase a machine that will last for five years and then scrap it, we argue that we supply a better article, more durable and efficient, and one which enhances the price of his grain something like 2s. or 3s. a quarter. It is only a nominal sum to thresh his grain, but if he gets 1s. a quarter more the thing is soon paid for. It is only by force of example that we can compete. Under any fiscal conditions we should still have to compete with this short-lived machinery as buyers would not take short-lived machinery from an English manufacturer.

The Americans have tried their machines in Rumania where we have a large market. We send many engines every year and there they will not have these cheap engines as they are accustomed to English machinery. They have tried in Denmark, but they have got no foothold. They have tried in Russia to some extent, but they have no foothold ; but in South America and in the Colonies they are succeeding.

American Dumping

America is something like 40 or 45 times as large as Great Britain, with an *ad valorem* duty of 45 per cent., so they make large quantities and section them very much. One man makes one thing and one thing only ; he makes in large quantities and sells through his syndicates in his own country at a price carrying a very considerable profit, but that is a matter of arrangement among themselves. A large percentage of the machines is dumped in any country they can. For instance, they are
689 exporting agricultural implements and harvesting machinery very largely to our Colonies, but our heavy class of productions to only a small extent because the Colonist is a practical man and he will have, on the whole, a good article. Therefore it has not affected us very materially, but they have tried it in almost every country in Europe and in reaping and mowing machines they have been very successful. With the heavier class of English productions they have not been successful, but it is only a question of time. They do a considerable trade in Great Britain in fixed engines ; in fact our own Houses of Parliament were lit by American fixed engines. In Chile and South America and our Colonies, and even in India, they dump down their surplus products at whatever prices they can get, and that is why I am so anxious for a preferential tariff with the Colonies.

American Reaping Machines

The Americans have captured the French trade in reaping machines which until a few years ago was all done by English firms. The English maker of reaping and mowing machines has made a more substantial article, but the American for the reasons given, cheap wood and transport and so forth, has stepped in with a lighter article that better suits the light horses on the Continent ; so far as reaping and mowing machines are concerned, which are not a serious piece of mechanism, the American has swept the English trade away. We should get no home market whatever if we made a cheaper class of article, and we could not compete in a neutral market. We do not want any dumping ground. We want to supply a good article, well constructed and adapted for its purposes, at some profit to ourselves, and we want a continuous trade.

Effect of American Tariff

Since I have known the American trade, that is within the last 30 years, we have practically not 690 sent machinery to America, except something of a special nature, *e.g.*, a traction engine to New York, and a road roller. The English engineers say that there is not a good traction engine or a good road roller in the States, but there they make road rollers that will sell, and sell for less than the English, and the duty keeps us out. If they would remit us half their duty we would try. A gentleman came over from San Francisco many years ago, who thought, as they were on the eve of a Presidential Election, there was a chance of the duty decreasing. He said he could do a very large trade if the duty went down 10 per cent. He tried all he could and his friends with him, but it was quite futile. The manufacturers are on the Eastern side and the agriculturists on the Western side. He thought, taking the railway transit from the east to the west into consideration, that getting a cheap sea freight direct to Western ports, with 35 per cent. duty, we could have competed.

Freights

The German and American manufacturers are able to work with the railway and shipping lines more advantageously than English manufacturers. They will give advantageous through rates which we cannot get the English shipping firms or the English railways to consider. We deliver f.o.b. English shipping port. If we could arrange favourable through rates with the railway and shipping companies as the Germans do we should be quite willing to deliver wherever it was, but as a rule we cannot obtain favourable through rates. We only deliver c.i.f. in a Colonial port occasionally. That applies in New Zealand too, but as a rule we find that there is no facility. The regular lines are all in conference, and tramps are too irregular. That does not seem to make any difference to the Germans. In the South African lines though all are in 691 conference they can get cheap rates and it would appear the State railways give special facilities for exported goods. They seem to work together against the common enemy, the Britisher. We cannot get our railway and shipping companies to give us similar conditions though we are large exporters.

English Canals

In England the canals are practically all in the hands of the railway companies and they control the traffic by prohibitive tolls. In our own neighbourhood we draw our coal from Nottinghamshire. The colliery we take our principal supplies from is connected with our locality by a canal which is the property of the railway company, and they have put on such a toll that we can get the coal direct by rail on their own line, which is direct to us, at 3d. to 6d. per ton cheaper. The canals in my neighbourhood are falling into very considerable disuse. There is the Aire and Calder and the Bridgewater and a few more in this country which are worked and developed but generally they are strangled by the railway companies. If the canals were emancipated from the control of the railways they would pay if facilities were given for haulage and for expeditious traffic and systematic depots. Water carriage is essentially cheaper than rail. In Germany and Austria-Hungary water carriage has no inconsiderable portion of the traffic, particularly to the ports of Rotterdam, Antwerp and Bremen, and there so far as I can judge every facility is given. In France also the canal system is very effective.

Railway Rates

Our trade suffers to some extent from the preferential railway rates conceded to exported goods in foreign countries, but it is very difficult for an English manufacturer to ascertain what the preferential rates 692 on the Continent are. They can only be felt by competition. Preferential rates in foreign countries on goods for shipment to our Colonies and abroad militate against us. That applies a good deal to India and Australia as far as we are concerned. The German railways work with the German shipping lines and they will carry say from Mannheim through to Calcutta or any port at a rate which no English shipowner will look at, and no English railway would dream of competing with, and that remark also applies to America. In Germany they have great facilities in through shipping and railway rates to our Colonies and abroad. Recently they have established competition with us even in Calcutta. As to America, machinery was carried from New York to Hull for us at 22s. 6d. and 5 per cent. added ; we should pay 8s. 4d. from Hull. Some other machinery that we have got recently was carried from New York to our place at 25s. and 5 per cent. dead weight, so that it pays to make a bargain in New York for direct delivery, as we get it 6s. cheaper.

Commercial Travelling

The United Kingdom is somewhat behindhand in the system of commercial travelling compared with America and Germany but this is fairly efficient in regard to our manufactures. Prohibitive tariffs and bounties enable our competitors to go to an expense in this direction which the English manufacturer could not commit himself to. We send commercial travellers who speak the language to the Continent periodically; they are good linguists and are well coached at the works. In India we have established our own house in Calcutta and Bombay, and we work the whole country through these branches. To every foreign country we send travellers periodically, but we have agents in different centres who have been our 693 agents for the last 20, 30 or 40 years ; we give them stocks and other facilities for the transaction of the business and we send out catalogues extensively in all languages. We are inundated with German travellers with circulars soliciting orders. They are not more pressing than the English traveller in trying to get an order. The English traveller can pretty well hold his own. I only see foreign travellers occasionally when they represent an important firm.

Foreign Patent Laws

The patent laws in foreign countries, particularly in Germany and Austria-Hungary, are vexatious. They compel the manufacture of the article in their own countries, which practically prohibits the successful use of the patent by the English manufacturer, the subject of such patent being frequently a detail to be applied to a complete machine. It is further difficult for an Englishman or firm to procure a patent in either of the two countries. We have overcome that difficulty by getting the business done in a German name. In fact, we have had to procure a number of our patents in German and Austrian names in order to get them impartially considered and passed.

Amalgamations

The causes of amalgamation in the United States particularly, and in Germany as well, have no doubt been greatly strengthened by tariffs enabling them to fix their prices in their own country, manufacture more largely and compete at lower prices in other markets with their surplus production. The causes of

694 amalgamation have not been operative to any appreciable extent in England. We have no tariff and have little or no cause for these amalgamations.

Trade Unions

We are what we call a free shop and do not come much in contact with trade unions. We neither quarrel nor bargain with them if we can help it. We joined the Federation in 1898, and had to lock our men out with them at the time, and we acted wisely. Trade unionism is increasing in the country a little, but not in our part. We do what is right to unionists or non-unionists, and ours is a constant shop. It is not like a shipbuilder's yard. We have no St. Monday and St. Tuesday and bad weather. Our men work from Monday morning to Saturday noon. They have piece work and other advantages in a town like ours, with constant employment and regular wages, which I think and hope they appreciate. If we cannot convert a man from keeping St. Monday we ask him to go away, because one man cannot break the week alone, but gets two or three to help him.

Decimal System

That the decimal system is right in principle there is no doubt, but I look at it more as the metric
system. America and Great Britain are two of the largest manufacturing countries and America will not
adopt it for some time. It is a very serious matter to effect a change in gauges, templates, standardisation,
limit gauges and the like. It will ultimately come but there should be some 5 or 6 years' notice given to
enable every manufacturer to put his house in order. If the question is, should it be adopted in the future ?
the answer is " Yes, but not until the Americans are willing to come with us." It would create dire confusion.
695 Now it is very clear there are the two systems, the Anglo-Saxon system and the metric system. Really there
is little or no difference. The German is pushing it because he wants the metric system introduced as the
Anglo-Saxon system is confusing to him, and we on the other hand want it introduced ultimately as it is
the best, but we require time in which to do it. At present we prefer to remain with the Americans until a
period is fixed for its adoption.

Technical Education

We believe in the past foreign countries have derived important advantages from their system of technical and scientific training and especially Germany, but now in all the leading manufacturing centres in this country the technical training is equal to that of any of our foreign competitors. Manufacturers in the United Kingdom have realised for some years past the necessity of this and even in our own small town of about 20,000 inhabitants we have established Science and Art Schools and have had these in successful work under South Kensington auspices for some 30 years and between 800 and 900 names are now on the registers. These classes have been in recent years assisted by the County Council. In all the leading manufacturing centres there are and have been now for many years past schools of art, properly engineered, and taking every different section of technical and scientific education.

Standardisation

British trade has not suffered to any extent through the absence of a proper system of standardisation, but this important question is claiming and has claimed the attention of all large manufacturers.

696 **Raw Materials**

We draw almost the whole of our raw material from Great Britain. In our engineering, iron foundry
and boiler making departments we use largely pig iron, steel plates, all kinds of high-grade steel, tubes, bar
iron, copper, tin, &c. Our cold blast iron supplies are drawn from Wales and Staffordshire and we also use
large quantities of the best brands of Scotch pig iron for general purposes. When the Americans have a
spasm of bad trade and dump a lot of iron down, I am hardly patriotic enough if they will take a very low price
not to buy it, but I can do without it uncommonly well. I have occasionally bought but not to a large extent.
The same remark applies to American tubes. The Americans have a very high tariff against British tubes, but
they have put down modern machinery and modern steel-making appliances, and make a beautifully soft tube
very even and clean, and undersell the British makers. I have at times bought a few lots from them but as
a rule we buy our tubes in Great Britain ; they are very good though we have to pay something like 7½ per cent.
more. I have been tempted to buy steel plates from America but never did so. We use 5,000 or 6,000 tons
a year, all from Scotland and the Midlands. The high-grade steels we take from Sheffield ; tubes from home
manufacturers with the few exceptions I have named. I have bought 10,000 American tubes two or three
times in my life, but we use altogether about 50,000 a year. Our bar iron we take from Yorkshire and the
Midlands, we do not import any. We have had structural steel work from Belgium and we tendered the
other day for some structural steel work at £6 and £7 for the English, and £5 4s. for the Belgian. The
copper is English refined and Rio Tinto. Tin comes from Cornwall. The English tin is a little better than
the Australian. We use largely English timber. We may be considered a little old fashioned in that, but
697 there is nothing like English oak and ash. We have not found American woods of this kind as good, but
are importing a good deal of American hickory which is very good. Soft wood we take
from the Baltic, that is from Russia and Sweden. We get our forgings practically from Sheffield,
and we have a considerable stamping plant. Not a week passes but we are offered Krupp's forgings, as best
Westphalian brands, but we are well supplied at Sheffield, are large consumers and would rather patronise
our countrymen. There is only one thing we cannot get as well in Great Britain and that is drawn soft
steel bars for pin work, bright drawn, hexagon, square and round. That is comparatively speaking a new
trade introduced by the Americans, but the German is better than the American ; it is softer and we
use it in large quantities. I have tried English maker after English maker, but am buying in Germany
for the simple reason that I cannot get it in Great Britain. With that one exception we buy practically
all our raw materials at home.

General Effect of Foreign Tariffs

Tariffs naturally tend to the efficiency of production in foreign countries and by them the foreigners have practically secured their home markets without regard to British manufacturers or exports to Great Britain, as we are at present unable to retaliate. Our policy of Free Trade has enabled the tariff policy of our foreign competitors to be carried out to the serious detriment of English manufacturers, and has tended to crush English agriculturists. I am not an agriculturist, but these remarks apply with equal force to the agriculturist. There is no doubt that the tariff policy of foreign countries promotes continuity in

698 running and the general efficiency or organisation of the industry and enables the manufacturers to go to greater expense to do a world's trade. The trade of some of our manufacturers has been so strangled that they dare not invest capital. They have no continuity of employment, and that restricts them, and it is only the large manufacturers nowadays that can keep their machinery up to date and meet exigencies of this kind ; and even they are doing an increasing trade at infinitely less profit. Our agriculturists have been strangled also while this has been done.

Duties

The adoption of a tariff in this country judiciously arranged would add to the commercial and manufacturing interests, and to the steady and continued employment of labour, but it can never be done to the extent it is done in either America or Germany. A moderate duty if it produced continuity of work would enhance the price of the article manufactured very little, if at all, to the consumer. In our business the lame ducks, if one may use the phrase, are weeded out. The trade of the country is in five or six hands, under ten at any rate, and a duty would aid any man whose house was not in perfect order to put it in order. The Americans and the Germans now dump their goods into our own Colonies and Dependencies and the power of retaliating would be of great advantage to us and would aid in the continuity of employment. We have an immense population here and we must keep it employed, and the more regular the employment the cheaper you can produce the article. It would pay better to have other appliances to produce it, but now people will not put money into a business that is decaying.

Raw Material Free

699 We must never think of putting a tax on raw material. We are essentially an industrial manufacturing population ; the people need employing and the manufacturer in every position will make the same demand for free raw materials, and then we must trust to our own ingenuity and wit to manufacture cheaply. The only question is how to define raw materials. Pig iron is raw material, but bar iron may not be, nor do I consider billets a raw material but ore is still more correctly a raw material. We produce pig iron as good and as cheaply as other countries. We might allow it to come in free, but that is a matter of arrangement, is one of the things to bargain upon, but in principle we want our raw materials as cheaply as possible. We use Alabama pig iron as against Scotch. It is used as much in England as the best brands of Scotch.

Retaliation

I do not ask a 45 per cent. duty as against America but I ask the power to retaliate, the power to say we will not take everything you sell us now free and allow you to use us as a dumping ground for surplus products.

Where we used to sell perhaps 200, 300 or 400 engines in Austria-Hungary, we sell now 25 or 30. In fact the trade has gone. The duties are about 23 per cent., and they threaten to put them up to 35 per cent. That would be absolutely prohibitive. Forty per cent. of the finer flour from Austria-Hungary is sent to England. We are large importers of grain, Bohemian ware and fancy leather goods and the simple power to retaliate or threaten any of their own industries would bring them to a reasonable frame of mind. We are also large importers from Germany and what we feel is that we ought to be in a position to retaliate
and make a bargain with them. They are using Great Britain as a dumping ground for their iron and steel 700
materials. I would even tax their food products, giving the Colonies a preference. What we must do is to cultivate our Colonies and dependencies. If we can check the foreign makers by retaliation and get them to modify their duties, then we must use our wits to compete better in their markets.

Preference

We have not felt that there has been any very obstructive effect in Colonial tariffs. In a new country a tariff of this kind is an easy mode of collection of revenue, and almost a necessity. We have not found them oppressive. What we do want and what we ask for is that we should have a preferential tariff with our Colonies both ways. Let us take their goods at a preferential rate. They can feed us, they can grow corn, cotton, linseed and everything practically. Let us have mutual preference. Under the South African tariff we are allowed a preference of 2½ per cent. The Germans now are invoicing their goods with this 2½ per cent. taken off. If the preference in South Africa were increased to 5 per cent., that would be reasonable. Two and a half per cent. is not enough, particularly having regard to the circumstances under which we have reacquired our South African possessions. I would rather be without the 2½ per cent. The shipping bounties of the Germans and Americans and their facilities of transport far more than compensate for any 2½ per cent. We have had no experience as to Colonial preference hitherto, but there are great possibilities for it in the future. Beyond the 2½ per cent. in South Africa there is none except in Canada and Canada is overruled by the Americans. Our class of manufactures does not meet
the Canadian markets ; on the other hand they swamp our markets with their reaping, mowing and other 701
machinery along with the Yankee. Twenty-five per cent. is a substantial preference but no English manufacturer up to now has thought it worth his while to open up a Canadian trade in our branches.

WITNESS No. 271

MR. ALFRED S. TATTERSALL

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Milling Machinery

State of Trade.

The milling machinery business with foreign countries, the Colonies and the British possessions, notwithstanding competition, has increased slightly. The total net profits in our trade in relation to the turnover have also slightly increased in recent years, because of the disposition of foreign countries to adopt the new milling system.

702 Though our trade has constantly increased during 20 years, and our net profits also, we complain that we cannot make more and do more. The trade ought to be four times as great as it is. If a larger quantity of wheat were produced in this country there would undoubtedly be a large increase in the home manufacture of milling machinery. We should make the 25 per cent. of flour that now comes from abroad, and probably something more, because about 640 small mills would be required to make the additional flour we need, and that would give a very great impetus to the milling engineering trade.

Foreign Competition

We are considerably handicapped in sending machines even to our own Colonies owing to competition principally from Germany and America. They are able in many cases to undersell us. The roller milling engineering has been the outcome of the revolution in the manufacture of flour which has taken place during the last 25 years (the industry only dates from that period), and it has been gradually growing ever since until quite recently. Where our machines are made there are often no other makers within miles, and there are only a few firms engaged in the business. Some 75 per cent. of the flour in this country is ground and made by foreign-made machinery. Imported roller mills are chiefly from Germany and Switzerland, the grain-cleaning machinery from America. The British manufacturer cannot compete in consequence of our ports being free to the foreigner, and the output of our works is not sufficiently large to enable us to make machines cheaper. American grain-cleaning machinery is being sold here at least 10 to 15 per cent. cheaper than in America. We do not get much of the wheat-grinding machinery from there; that comes chiefly from Germany, and is not sold here at a less price than in Germany. America can sell the machinery cheaper
703 here than in America itself through firms competing with one another, vieing for trade here, and the desire to increase their output and so lessen the cost of production.

American Machine Trust

The manufacturers do not compete with each other within the United States; there is an understanding between them. They have a trust or kartell with regard to their home trade, which does not apply to their export trade. That may seem an extraordinary state of things, but it is so. The arrangement does not apply to England.

Exports

The effect of foreign and colonial tariffs is such that we cannot send much machinery to foreign countries. We still export to the Colonies, but could not sell a milling machine in Germany or Switzerland. We send steam machinery for roller mills to South Africa and Australia, where this is classed as agricultural machinery, there being no duty on it in either country, but we have now to state that it is British made. The duty in America is about 25 per cent., the same as in Germany and Canada, but we get 33⅓ off in Canada, and that has led to an increase in our trade. There is a duty of 25 per cent. from the States into Canada. In South Africa the declaration of British manufacture implies that there is a duty if it is not British made. Considerably more than 25 per cent. of the total milling machinery that is now made in England is exported. (Figures as to that are not accessible, because every milling engineer and machine maker keeps those things to himself.) Most of the machines exported go to the Colonies. Twenty-five per cent. of the home trade in milling machinery is done by the home makers, and 75 per cent. by the foreigner. These figures are derived from my knowledge
704 of the system that every mill is running on, and, knowing the system, I know whence the machines come.

Official Classification

Our exports are classified in the Board of Trade Returns under agricultural machinery. The classification is a bad one.

Decimal System

I am very much in favour of the decimal system; it would be a great advantage, both for home use and for the purpose of trading with the foreigner.

Imported Materials

The only imported manufactured material used in the construction of our machinery is manufactured silk from Switzerland. The iron and steel is practically all made in England. A duty on foreign iron and steel would affect us a little, but not much.

Relation of Flour Consumption to State of Trade

There is a perceptible reduction in the demand for flour during a prosperous time of trade. That is to say, during prosperous times, when men are continually working and have better wages, they are able to spend more money on other commodities than flour, and there is a decided reduction in the price of flour then. The demand for flour is greatest when wages are low, and millers have the best times when times are bad in this country. In consequence of bad trade the working classes do not pay more for their flour, but they spend more on flour because it is the cheapest food they can get.

Duties

The 1s. duty on corn caused an extension of the milling industry in this country; a few more mills
705 were put up, and existing ones were busier; since it has been taken off, business has gone back again to its former point. We felt a slight increase in renovations, but not in orders for new plant or anything of that kind. A 2s. duty instead of 1s. would undoubtedly be considerably more advantageous. Had a higher rate of duty been put on flour than on grain, it would have helped the industry to a still greater extent, and would have been very desirable. There was a duty on flour of something under 3d. a sack. The 1s. duty caused an enormous increase in the consumption of offals in Ireland and in the output of pigs. The tariff policy of foreign competitors has greatly promoted continuity in running, and efficiency of the organisation of their machinery industry. If we put the same tariff on foreigners as they put on us it would place us in a position of fair competition with them; we should undoubtedly increase our business by keeping them out, and we could compete in Germany with milling machinery if they removed their duty.

English Works Removed to Continent

Messrs. Simons, who do the largest trade in this country in milling machinery, have extensive works on the Continent, for the simple reason that they have less expenses in many respects, and have the Continent open to them as well as England. They are reported to have said that if we put on a 5 per cent. duty they would manufacture all their machines in England. It is a great advantage for them to have their own works abroad under one management. English millers are buying foreign-made machines, but a 10 per cent. duty would cause the firms to manufacture here.

Duties 706

There would possibly be a slight increase in the price of machines if there were an import duty, but there would not be any increase in the cost of flour on that account ; though the machinery would be more costly the flour would be made at about the same price. The price of the machinery would at first increase *pari passu* with the duty, but later machinery would be made by cheaper methods, and therefore the price would be kept down, and that would tend to keep down the price of flour. Millstone making has gone almost entirely out. In any case with regard to flour-milling or grain-cleaning machinery a 10 per cent. duty would be sufficient to be a very material advantage to British milling engineers. Duties on manufactured and partly manufactured materials which are used in making milling machinery would have no effect, because we import so little. The effect on manufacturers of jute (who use flour very largely in the shape of size) of a 2s. duty on wheat or flour would be very slight ; they would have such an increase of trade in sacks that they would forget all about the size they had to pay for.

Preference

The preferential tariff in Canada has not yet had any beneficial effect on our trade, because it has not been sufficiently long in operation, but we may derive benefit from it. The increase in consequence of the reduction of 33⅓ per cent. is at least a quarter. Our trade was stationary before the reduction of the Canadian tariff in favour of British commodities. An extension of the system of preferential tariffs in the outlying portions of the Empire would considerably benefit our trade.

707

WITNESS No. 272

MR. ALLAN RANSOME

(A. Ransome, Ltd., Stanley Works, Newark-on-Trent ; Designers and Manufacturers of Wood-working Machinery).

Wood-working Machinery

Our attention is entirely confined to the designing and manufacturing of wood-working machinery of all kinds. I have been associated with the business just 50 years.

State of Trade

We make every sort of machine connected with wood work, saw mills and saws, and also small tools. My company have patterns for over 1,000 different machines.

When I came to London to join one of the two small firms who were then manufacturing wood-working machinery, they were the only two of any note in the kingdom. They were employing altogether 708
40 or 50 hands, and the annual output would not be more than £15,000 a year. That was in the year 1855. One was Samuel Worssam and Company, and the other was William Parsons. They were both men who had risen from the ranks, men in very humble life without much education, but they were clever mechanics, and they were the first people who really did anything towards manufacturing wood-working machinery in a commercial way. In 1870, there were five firms engaged in wood-working machinery in London, all doing well ; the aggregate of the men employed was about 700, and the value of the machinery turned out I estimate at £200,000 a year. One firm was Easton and Amos (but they only employed a small number of their men at wood-working machinery) ; they bought the business of Parsons, who had failed. Another was my firm, formerly Samuel Worssam and Company, but in 1868 the name was changed to A. Ransome and Co. ; my partner and I having separated, it was in 1870 being carried on by myself. Then there was Samuel Worssam, Junior and Co., an offshoot of my first firm ; Powis, James and Co., and Charles Powis. Those were the five, and at present there is not one of these firms existing in London. Easton and Anderson are carrying on business, but have for many years done nothing in wood-working machinery, and I do not suppose the total amount of wood-working machinery made in the London district now, since my firm moved to Newark four years ago, is more than £5,000 a year, if as much ; so that there is a local industry which has dropped entirely and may be said to be dead so far as London is concerned. My firm is the only one of the five referred to now making wood-working machinery, and we moved our works from London to Newark in 1900 to get more room. There are other considerable firms besides ours in the country : Robinson and Son
of Rochdale are very large people, larger than we are, although not as old. Then there are McDowall of 709
Johnstone, near Glasgow ; Pickles at Hebden Bridge ; and Sagar, and Haigh and Co.

Profits

The profits on the individual articles have very much diminished. We require a much larger turnover to make the same profit that we had say 20 years ago. The total output is larger than it ever was, but the profits in all businesses fluctuate very much. Our best profits are made on our patented articles ; our specialities remain much about the same. The prices are a little lower, but we can manufacture much cheaper in the country than we could in London. The total value of wood-working machinery made in this country is not more than half a million a year at present.

Exports

We send about half our machinery to foreign countries and the Colonies. A good deal of railway carriage-building machinery we send abroad to the various railway companies. I am rather surprised that we send as much as we do to South America. We send a great deal to the Argentine Republic. That may be due to the fact that we have British agents and British firms there. It is mostly British capital that is invested in the Argentine railways, and the engineers are English, and no doubt their feeling goes in favour of the English maker. Almost all the Colonial and foreign work we do now is through the engineers of railways, the railways, and the Crown Agents and Agents General. We are doing a great deal less direct trade with the Colonies than formerly. We have agents in all the Colonies and they apologise for not sending

710 us orders, saying that the Americans and the Germans are taking all the work, possibly because their machines are much cheaper.

My firm have fitted up some large mills on the White Sea and some others on the Baltic, but not very lately. We frequently send an odd machine there, but do not do a very large trade. At Tver, about a day's journey from Moscow, we fitted up what are probably the largest railway carriage shops in Europe. This was for a large place which covers 250 acres of ground, put up by a French firm. We fitted that factory up entirely with wood-working machinery some 10 years ago, but that order we got in Paris from a French company called Dyle and Bacalan. I have no doubt that it has supplied the carriages and wagons for the Siberian railway to China. Our contract was about £10,000.

American and German Competition

There is no doubt that what I may call our private trade with the Colonies has been almost ruined
by American and German competition. We do a good business through the Agents General, and for the foreign
and Colonial railways where the material is bought through the companies here, and consulting engineers have
to give out the orders, but where it is a question of selling a machine to a small builder out in Adelaide
or any other Colonial town we have really no chance. The Americans and Germans keep in stock a lot
of cheap machines, and the Colonials will not look at English machines. I think it will come to keeping
a stock of cheap English machines, but it is a serious thing to send stocks abroad. We have often tried
it. You send over what you think will take, it remains out a very long time and perhaps after some years
711 our agents write and say: "We cannot dispose of it and you must take it back." We should make a strong
endeavour, if something is not done to put a tariff on these cheap things, to see if we cannot work on the same
principle and dump down our extra manufactures. We have a pretty good knowledge of the style of the
articles that the Americans and Germans send to the Colonies. I know them all by heart and we could make
the same article as the Americans when it is not patented. Very few of the American machines are patented
articles. We could make the machines if we liked, and I dare say at the price, if we went on the dumping
system. We are seriously considering whether we shall not work on those lines. I might mention that
the Managing Director of the J. A. Fay and Egan Co., our largest competitors in America, came over
our works some time ago, and he said when he left me: "If you are satisfied to make the same class of
machines that we are, to manufacture them wholesale and on the same lines that we do, you could beat my
firm out of every market in the world except the United States." That made me think that something
might be done in that way.

American Machines

The quality of the metal that the Americans put into their machines is very good indeed. Their iron
castings are decidedly tougher than the average run of castings in English machines. They put in a better
quality of iron, but they are very light, a different style from ours. I have supplied Messrs. Marshall, Sons
and Co., of Gainsboro', with a good many machines, and when I said to them: "Now you have tried
a few American machines and a great many of ours, will you tell me honestly what you find is the difference
712 between them?" the reply was: "The American machines are very catchy and handy, full of little dodges
which make them convenient to work; but they do not last anything like as long as English machines."
Messrs. Marshall have machines made by my firm nearly 30 years ago which are still working as well as ever,
but they said the American machines last a few years only. I suppose 10 years is a long life for an American
machine, and they begin to require frequent repairs some time before they give up altogether. The
Americans are continually improving their machines and are always turning out something new, and there
is no doubt their machines are very convenient. I have talked with many of them on the subject and have
asked: "Why do you not make something more substantial?" The answer was: "We do not want to;
if we were to make them to last for ever we should not have enough to do." The user also takes
the view that it is much better to buy a machine once every five or six years and have the newest he can
get than to keep on working old servants, old slaves, for 50 years. There is a growing feeling in that
direction. My own experience of the American machine tools for metal working has been extremely good.
We have bought a great quantity of them for our new works; we could not get such good tools in design and
convenience in working in England. There is no reason why the English should not make them every bit
as good; only I think the Americans are a little quicker. They get them before us.

American Band Saws

I buy everything in this country except band saws, and very occasionally circular saws and cutters.
Band saws cannot be made in this country to stand because they have never given sufficient attention to
them. None of the Sheffield saw makers lays himself out for making band saws. These saws are made
713 from the very best quality of British steel. There is no reason why they should not be made here, except
that the British manufacturer will not do it. I believe almost all the band-saw steel comes from Sheffield.
I know it is bought very largely by the chief makers of band saws in America, and at one time a great deal
of the French steel was bought from there. I have bought circular saws abroad. If I want a really first-rate
saw I should go to America for it. They pay more attention to the making of them. At the same time
there are plenty of good firms in Sheffield who make a sufficiently good saw.

Employment and Wages

We always endeavour to keep our hands on as we do not like to change them. Our work is rather of a special nature, and we make great efforts to keep the men on; I do not suppose we ever vary 10 per cent. In the slackest times we are rarely 10 per cent. under our normal number, about 320 men. If there is not a great demand we work on stock. In the four years that we have been in Newark we have kept the wages at the same rate. There has been no great agitation to increase them, but the wages in the district are the lowest in any part of the country for engineers' work. We certainly find that a very great advantage, and it was our great inducement in going there. We took a few leading hands with us from London, but have none of them now. They pined for the enjoyments of the City, and made the other men unsettled too; but some of our older hands followed us and were willing to take the reduced wages; some of these are old men who probably would not have got another job so well elsewhere, and they are very well satisfied with the move. Living, house rent, &c., are very much cheaper in Newark than in London.

Technical Education

714 I have not felt the want of educational training amongst our own hands. In my own particular branch I have never seen a single machine from Germany that I should care to copy, but there are plenty of things among the American machines that one is very glad to get ideas from. The Germans are very good copyists, but I have never seen anything original from Germany that is worth having. Self-acting tools are now so common and everything almost is done by machines in all modern work, that generally speaking the most valuable workman is the man who identifies himself with the machine. I do not think that technical education to the working man will help us much. As regards the higher-class premium apprentices, I find with respect to young fellows whose parents tell me that they have had the advantage of being for a year in a technical school and know a good deal about engineering, it is quite a misfortune if they have had that training, because they come with a sort of smattering. It has twice been my fortune to examine students at one of these technical schools; it is child's play rather than serious work. The lads acquire a smattering of engineering, and they get disgusted when they are set back to what they ought to be put to when they first begin working in the shops. Not one in ten of them can file flat. I do not think that if we had the technically-trained intelligent workman we might often get ideas and inventions from such a man. In America inventions come from the men who have gone through the technical schools, but that is because the American workman is a very different class of man from the English workman; he is far more intelligent and a far deeper thinker. Possibly education has something to do with that. The American policy of taking highly-trained men from the Universities into works is not a mistake if they are to fill positions where they can make their science useful, but 99 men out of 100 in these days go and work 715 a self-acting machine, or they go as fitters, and put together work which has all been machined to gauge. But if a man is in the position of a foreman, or in a drawing office, his technical knowledge there would be of great assistance to him and to his employers. It is useful for the few, but for the rank and file it is not very much use. I favour a system of picking out the bright lads and passing them on to colleges and teaching them. I always encourage my working apprentices to go to classes in the evening, and if they show unusual intelligence they get sent out with work; they go abroad, and then their knowledge is very useful to them, as it gives them a chance of rising, which they never would have had without it.

Elements of Cost

In my business, taking the average very roughly all round, there is one-third wages for productive labour (that is to say wages paid to men who are skilled, not general labour) one-third materials, and one-third trade expenses and profits; that is however a very rough estimate.

Commercial Travelling

Our system of commercial travelling abroad is capable of improvement. There is no doubt that both the Germans and Americans are much more diligent than we are and spend more money in pushing their business by the aid of commercial travellers and representatives. It is of course a heavy expense, and if we want to work on the same principles and go in for competition with Germany and America we shall have to do it too. We do not publish any catalogues in foreign languages, except a portion in French and sometimes in Spanish, if there is an exhibition going on, or for special reasons.

Dumping

716 Dumping has been destructive to our business in the Colonies, and also in the home markets. A great deal of cheap American and German machinery is being dumped here at very low prices. A double tenoning machine for tenoning two ends of a piece at the same time, for which our price is about £220, our cheaper competitors sell at £190 to £200; the American firm sells it for about £175, and a little while ago I was offered one quite new for £75 by an agent to whom the American house had sent over a large consignment. They make them in enormous numbers owing to all the parts being identical, and can thus undersell their English competitors. The Americans go on the principle that they never will be slack (and it is a right principle too), that they must run their works up to their full capacity, whether they are busy or not, and if they cannot get rid of the machines at home they send them abroad. In the above case a list of machines was sent to me by a firm with whom the first American house, Fay and Co., had made an arrangement to act as their agents, and I suppose they got tired of these machines being so long in stock and sent this list round to me and others, marked with the original prices and the prices that they would be willing to take; the one offered at £75 was £100 less than the advertised price and £130 less than I could sell the same kind of article for. It is perhaps something like the American case clocks. A case containing a given quantity of clocks which would cost £100 in the United States can be bought here for £40, but one can hardly understand that all that difference is saved out of trade expenses. One would think they must make a dead loss on the £40 case even if they only took materials and skilled labour into account. The Americans maintain that it pays them to sell at that price rather than reduce their output, but I do not think it would pay anyone 717 to work under any circumstances to sell below the actual productive labour and material cost, because inseparable from productive labour there is the general labour and other things which must go on.

Patent Laws

If our patent laws more approached the American it would be an advantage to the working man, and probably to his master too, because if a workman had a good idea he could patent it at a reasonable cost. The expenses are much less in America. In my own line there are a great many more patents taken out in America than in England. In most foreign countries one of the conditions of granting patents is that they shall be worked in that country within a given time. If I patented anything in this country and also in France I should have to make it in France within a given time, I think within two years. That law undoubtedly tends to the advantage of French labour; it is Protection.

United States Tariff

I do not send £10 worth of machinery in 10 years to the United States because the duty of 45 per cent. *ad valorem* on my goods is absolutely prohibitive. The Free Trade policy of England undoubtedly helps the tariff policy of foreign competitors, and that tariff policy promotes continuity in running their works and the general efficiency of the organisation of their industries.

Duties

A 10 per cent. duty would not be of any use. We should put the same duty on goods coming from America, Germany and other countries, that they put on ours. They might bring theirs down and that

718 would bring ours down. If they had a duty of 10 per cent. our goods could go through that. We are not more interested in securing the home market than in increasing our foreign market.

Effect on Prices The effect of a duty would be that we should get better prices, but not to any very great extent. More competitors would spring up here, and the prices would be kept down by that, but certainly it would make one firmer in one's prices.

Preference Competition in the Colonies has come so gradually that it is very difficult to say when it began; without doubt it is getting more and more acute. As far as we are concerned it has pretty well taken the Colonies by storm. Unless we can make arrangement for some preference in the Colonies I am afraid that state of things will last. I have sent a great deal to the Cape, but that has been mostly through the Government. Undoubtedly there is a feeling in the Colonies that they would prefer to deal with the Mother Country if they could do it at the same prices. I have experienced no advantage in South Africa since the duties were reduced in favour of British makers; I have hardly had time. Our private trade is practically extinct with the Colonies.

719

WITNESS No. 273

MR. GEORGE CRADOCK

(George Cradock & Co., Wakefield; Wire Drawers and Rollers).

State of Trade Mine is a peculiar trade, because I have many branches in my own works. We were wire-rope makers many years ago, when we bought wire from a wire drawer. We commenced 20 years ago to make our own wire, but had to buy our rods. Then we built our own works for making steel and rods. I am the only ropemaker who manufactures everything from the steel to the finished rope; many ropemakers have experience of the finished rope only. In our business we manufacture the steel, which we make into rods, the rods we draw into wire, and the wire we make into ropes. The steel is first cast into an ingot which is hammered down and rolled (technically called cogging) into a billet; the billet is then rolled into a rod about the thickness of a penholder; after that it is drawn cold through a steel plate to make it into wire, which is later twisted into a rope. We only sell the finished rope. Our wire and steel making and rod rolling is entirely for our own use, excepting some rods of which we sell a little on the Continent and in the United States and special classes of steel bars and billets. We do not make the ordinary twisted strand for fencing. We 720 make the rope for use in collieries and aerial rope work. Our rolling mill has a capacity rather in advance of what we require at the present moment, and to fill up and get a greater output of rods we roll for hire. The wire drawer can specify which billet he likes, and can order rods to be made from A. B.'s billets knowing what I pay for the latter as well as I do myself. He can specify German billets if he likes, but I cannot do the work in that case, because the Germans roll at such a low price. Some time ago I quoted £5 17s. 6d. for soft steel rods rolled from German billets. It would be impossible to sell those rods made from English steel or English billets at that price, but I could have bought German billets, and £5 17s. 6d. would have left me 4s. to 5s. a ton profit. The customer was buying these rods at £5 7s. 6d. from Germany, and as at that price I should have lost 5s. a ton, I had to leave it. The galvanised steel wire for armouring or protecting electric cables used to be made in England, a large proportion in Yorkshire and some at Warrington. Every bit of that is now bought from the Continent at a price that we cannot make it at in England. It is only a low-class wire with a certain breaking strength, and is used for protection. It does not pretend to be a high-class wire. Strength is not always the criterion of quality. In the Yorkshire district all the lower grade rods are bought from Germany now, which means a very large amount lost to this country in coal, iron and wages. These rods are only bought because they are cheaper. The durability of wire rope depends on conditions of working. At one place it might last six months, and the same rope in another place two or three years.

721 **Exports** Our trade is mostly in the United Kingdom and the Colonies; the Continental rope trade of Great Britain is a mere bagatelle. Twelve or thirteen years ago we endeavoured to do a business in all the Continental countries, as no English firm was doing anything there worth speaking of, and we got a certain amount of business at a price that left a very small margin of profit, but we took it because we thought if we could get this it would help the output. It was an exceedingly troublesome trade, but we got a small connection. We lost it because of the price; we could not compete, but if there had been no duty we could have made a reasonable profit on it. They drop the price just to keep under their duty, and we cannot touch it. We did a little business in rods for higher class wires with one firm in Westphalia, but they said they must buy something at a lower price. We used to do a fair rope trade in Austria eight to ten years ago; now we do a few hundred pounds a year. If I sell the rod I make less profit, pay one-third the wages, employ less labour, use less coal, stores and everything else, than if I sell the ropes. With reduced profit and wages the other home trades, shopkeepers, &c., suffer. We desire to be admitted into foreign countries as favourably as they are admitted here if it could be done. Some years ago we had a fair Russian trade in the Charkoff, Lugansk, and Caspian Oil Wells districts. At that time there were small rope works at Riga and St. Petersburg. The duty on wire into Russia is £20 per ton less than the duty on rope made of the same size wire, so they started their own rope works, and now practically no ropes at all go into Russia; last year I only sent £75 worth. There are no wire-drawing works in Russia; the wire is bought in Germany, Belgium, England and France. Even for the

722 ropes made from wire bought from England they have a very good price. The Russian middleman
would not do anything under 50 per cent. profit, because he has to give 10 or 25 per cent. of his profit
in commission. The Russian tariff has not increased the cost to the consumer; he is buying at less
than he was, and we are at their mercy as far as wire is concerned. If Russian wire works start they will
impose a duty on our wire. I thought of starting my own works in Russia, but it is too risky a country
to work in. There is a risk of not getting your money in Russia, because "cash" means six months'
credit at the least, and probably 12 to 24 months. You have to pay a large amount of commission and
cannot do any business unless you have a man who knows Russian. We send a fair amount of rope to
Argentina and South America for traction, &c. A small amount of wire rope in value represents a large
amount of traction. One of the oldest firms in England used to do a very big business in the United
States; now the States make their own ropes. Fifteen years ago all the best ropes in the United States were
guaranteed English wire. American rope sold at a considerably lower price, being made of what the
Americans term "domestic wire." At that time we did a fair trade in ropes in America, probably
£15,000 a year; now we do not do £5 worth. The only alternative we had was to sell rods to America,
this of course not providing so much labour or so large an amount of money paid in wages in this country.
The trade in America has altered a good deal. They make their own wire. Until a few years ago all
the better class rods in America for mining wire rope purposes were bought in England, but now there
is nothing like so many as there were even two or three years ago. We do a reasonable trade in the highest
class of rods to America. They only buy the best class that they cannot make themselves; but that
723 market will disappear in a year or two, because they will make them as well as we do. In the Colonies
the low-class wire trade, such as fencing, is almost entirely done by German and Belgian firms. They
have protection at home and can get a good price there; we cannot sell wire to them, but they can afford
to export it, just to get the output. A good deal of English rope goes to Canada, but my own firm does
very little. The Canadian is a low-priced market, and we only make the highest class of rope. I am
sending a traveller to Canada to see if anything can be done. We do a very large trade in Australia.
New Zealand and South Africa in wire ropes for mining purposes. In these Colonies we get German and
American competition. The enormous quantity of fencing wire that goes to Australia now is practically
all German and Belgian, though America has sent a little.

Profits

Business is increasing, but prices have got worse. The net profits in the whole trade that I am engaged in have diminished very much.

Labour

In England there is a wire drawers' trade union, and one man works one block irrespective of the gauge, excepting in the case of very small blocks for drawing exceedingly small wire. If you go to Austria, Germany or United States, one man works from two to four, and in small sizes of wire five or six blocks. With six blocks he will do 250 to 300 per cent. more work than the man does in England with one block, but he does not keep all his blocks running the whole time.

Wages

724 Wire drawing is paid for by piece work; certain parts of the rolling and steel making are piece work and other parts and rope making are time work. My men have always been kept fully employed. The wire drawer gets a very great deal more wages than he ought for the work he does.

Raw Materials

Our raw material is Swedish and Cumberland pig-iron. Swedish iron is naturally a purer iron than the English, as it contains less sulphur and phosphorus, and in order to obtain a better class of steel we use a mixture of the two. There are many different brands of Swedish iron which vary enormously in price, some costing three times as much as others. Swedish iron is very much dearer than British, and I have bought Swedish pig for my works at a higher price than that at which I have sold manufactured rods made from billets specified by the firm having them rolled by me. Most ropemakers in this country buy their wire from a wire drawer, who buys his rods from a man who buys the billets, or from a man who makes the billets from the steel. Large quantities of the wire used for making ropes in this country are imported from Belgium and Germany, and sold in this country at prices at which the wire cannot be made here. Wire is sold here at a less price than in the country of manufacture, where they pay less wages, and have longer hours of labour. Years ago wire drawers in England bought rods made here. They now buy a very large percentage of rods made in Germany. For certain purposes it answers as well, but the highest class of rods is bought in England. Lately the tendency has been, trade being bad at home, to try and make a lower class of article answer the purpose.

Education

725 The present system of education appears to me most unsatisfactory. To make working men useful they are educated either too much or not enough. Among the best workmen I have ever had have been men who could hardly sign their own names. These men concentrated their attention on their duties and did as they were told, and would sometimes bring forward a practical suggestion The youths educated under the present system are a little above their work, and are much more interested in halfpenny evening papers containing the latest betting news, or Trade Union papers, do as little work as they can, and simply put time on until going-home time. The effect of increased education on the vast majority would be to make them altogether above manual labour. The men with brains would rise in any case. At the present time five or more men are required to do the work four used to do when they read less and worked more industriously, with greater interest in their work.

Local Rates

Local rates in our town are absurd. They are about 10s. in the £. In the last 15 years they have nearly doubled. They have increased 2s. in the £ in the last four years.

Foreign Methods

Foreign countries have no advantage in materials, machinery or processes of manufacture. I have been in one rope works in Austria, and mine is more economically laid out. Their labour is much cheaper or they would have to alter their methods. My own works have been entirely remodelled within the last 10 years. I have steam power, while in Austria they had water power from the hills, which is an

726 enormous saving, but the number of their labourers was double mine to perform the same amount of work in the rope-making department. If it were not for the duty I could export rods, ropes, &c., to compete with local makers, and it would leave me a very handsome profit.

Proportion of Cost With the exception of iron and coal the total amount of labour expended in my own trade is double the cost of raw material, because I do everything from buying the raw material to finishing the rope, &c., but taking each branch of the trade separately, such as steel makers, wire drawers, ropemakers, &c., the actual wages represent a much smaller proportion to the value of the material purchased. I purchase the iron and coal, and therefore in my remarks on this matter do not estimate the amount of labour expended in making the iron or getting the coal, but taking the coal and iron as my raw materials the amount of labour I expend upon the iron to convert it into a finished rope is very much greater than the value of the iron, being about three times its value. Of course this amount of labour proportionate to the cost of my raw material is distributed between the steel-making, wire-drawing, and rope-making departments.

Transport Rates In South Africa there is some German and American competition, and the 2½ per cent. preference given on the duty does not make much difference. They have cheaper freights both from America and Germany. The freight rate from here to Natal for Class I., which includes my goods, is 40s. From America there are no classifications; everything is at one rate—it varies from 10s. to 17s. 6d. The
727 difference between that and the rate from England represents the difference between profit and loss. The Prince Line announces that goods are taken from England to South Africa at the same price as charged from New York by the Conference Lines. I asked the Prince Line if the goods go from Liverpool to New York to be transhipped there, or direct to South Africa. The reply is that the steamers go *via* New York, that there is no transhipment, and that transit takes one month longer, so that my goods can go to New York and on to South Africa for 17s. 6d., the same price that the Conference Line is charging from New York to the same ports. If I send them by the Conference Lines they want 40s. from the English port direct to Natal. If we sent by the Prince Line we should lose our rebates on the Conference Lines, who also might refuse to carry our goods. Besides, our customers cannot be delayed by an extra month in transit; I should lose my business. The freights from Germany to Natal are a little less than the English, but the German lines are in the Conference with the English lines. I have tried to see if I could get any saving by shipping to Hamburg and transhipping there, but it would cost me more.

Railway rates here are very much higher than on the Continent. A 15-ton rope from my works to Chicago, *via* Hull, costs just under £4 a ton, or £4 2s. 6d., including handling and craneage. To send the same rope down to Cornwall will cost £4 5s. to £4 10s. I can send ropes by water to Hamburg, *via* Hull, and from there to Buda-Pesth by rail, for less than I can send them to Cornwall. In the British Colonies railway rates are much higher than they are here—the South African particularly. All importers
728 have to pay the same rate in the Colonies. They are Government railways, and are very bad.

Duties A duty of 10 to 12½ per cent. upon imports would enable the manufacturer to get work and manufacture the material at a small profit. It would just keep out competition in the materials that are sent and sold here for less money than they can be manufactured on the Continent. These things are generally sent when trade is bad. When very busy the foreigners can sell their output at home. They do not sell in England according to the value of the material, but according to their own output, and consequently our selling price is not based upon cost of manufacture, but what foreign goods are selling at here. If foreign makers have stock that they must realise, it is put on our market, and the English firm has either to take the same price or lose the order. This condition of things is injurious to the British manufacturer, and more capital has to be put into trade. We have an increasing population wanting employment, which cannot be had if we buy from abroad.

Preference If we had a preference from the Colonies, the United Kingdom would have the Colonial trade instead of the foreigners. When I was in the Colonies it was disappointing to see the amount of foreign material sold there which might as well have come from home. If we put our trade into a sounder position here as regards foreign competition, those who wished would be able to produce an inferior article which would suit some of these new countries.

See also Section V—Additional Written Evidence

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SECTION IV.—REPLIES TO FORMS OF INQUIRY 730

Imports competing with British Products

(A) IMPORTS COMPETING WITH BRITISH PRODUCTS

QUESTION 3 (FORM I.): *What are the principal articles that you manufacture for the home trade in respect to which you experience foreign competition?*

Germany

GERMANY:—

*Aerial Wire Ropeways.
Agricultural Drills, Implement Forgings, Implements, Rolling Machines, Separating Machines.
Air Compressors.
Alternators.
Anvils.
†*Apothecaries' Scales.
*Arc Lamps.
†Arc Light Carbons.
Armature Plates.
*Asbestos Packings.
*Assay Balances.
*Automatic Saw-sharpening Machines.
*Ball Mills.
Band Saws.
*Bar Iron.
*Bargebuilders' Gear.
*Bicycle Cups.
*Bicycles and Parts.
*Binders.
Binders' Machinery
Blowing Engines.
Blowing Fans.
*Boiler Fittings.
*Boilers.
Bolts and Nuts.
*Boot and Shoe Machinery.
*Boot Lasts.
Boring Mills.
*Bosh Coolers.
*Bottle Fittings.
*Bottling Machines.
Brass Castings, Cocks, †*Condenser Tubes, Meter Fittings. *Steam Fittings, Valves.
*Brick Making Machinery.
*Butter Churns.
Butter Workers.
*Cables for Light and Power.
*Calico Printers' Machinery.
Carbons
Cargo Steamers.
Cast Iron Steam Valves.
*Cast Steel Centres for Railway Wheels, *Stern Frames, *Rudders.
†*Castings.
Chaff Cutters.
*Chalk Packings.
†*Chemical Balances.
Chemical Machinery.
Cloth Finishing Machinery.
Cloth Fulling Machinery.
Coal Carrying Machines.
Coal Distillation Plant.
Coal Washing Machinery.
*Cockling Cylinders.
*Coffee Mills.
Colliery Machinery.
Concrete Mixers.
Condensers.
*Cone Paint Mills.
Confectioners' Machinery.
*Constructional Work.
*Continuous Current Motors.
*Conveying Machinery.
Copper Castings for Bosh Coolers and Electric Work.
Copper Wire.
Copying Presses.
*Corking Machines.
Corn Crushers.
Corn Dressing Machines.
†*Counter Weighing Machines.
*Cranes.
*Cube Sugar Machinery.
*Cultivators.
*Cycle Balls, *Frames, *Free Wheels, *Parts, *Pedals, *Rims.
*Cycles.
*Dies for threading.
*Disc Valves.
*Disc Wheel Centres.
*Dispensing Scales.
Distilling Apparatus.
Domestic Machinery.
*Drilling Machines.
*Drug Scales.
Drying Machines for Grain.
†*Dynamos.
*Electric Accessories, *Appliances, Batteries, *Bells, Cables, †Carbons, *Controlling Apparatus, †Cranes, *Cut Outs, Driving Engines, *Dynamos, *Fittings, Generators, Heating Apparatus, *Lampholders, Wires, †*Machinery, †Measuring Instruments, Motor Accessories, †*Motors, Motors for Power Purposes, *Storage Batteries, †*Switch Gear, *Switches.
*Electrolier Wires.
Electro-Medical Apparatus.
Electrotyping Machinery.
*Elevating Machinery.
Embroidery Machines.
*Emery Wheels.
Engine Fittings, *Forgings, *Parts.
Engineering Appliances.
Engineers' Tools.
Engines.
Feed Water Heaters.
*Files.
*Fine Electric Wires.
Fire-proof Pipe Coverings.
Fish-hook Making Machinery.
*Flexible Wire.
*Forged Shafting.
†Forging Presses.
†*Forgings.
*Forks. (Agric.)
Fur Sewing Machines.
*Fuse Boards.
*Galvanised Steel Ice Moulds.
*Garden Barrows.
†Gas Cylinders.
†Gas Meter Indices.
*Gear Wheels.
*Girders.
†Glove Sewing Machines. 731
*Goods Lifts.
Governors.
Grain Weighing Machines.
*Grapes.
Grinding Machinery.
*Grubbers.
Gun Metal Castings, *Cocks, *Fittings, Oil Cups, *Valves.
Gyratory Crushers.
Hand Pumps.
*Harbour Plant.
*Harrows.
Haymakers.
Heavy Oil Motors.
†Heavy Steel Shafting.
†*High Tension Switch Gear.
*Hoisting Machinery.
*Horse Clipping Machines.
*Horse Rakes. 732
Hosiery Machines.
Hospital Tables.
Ice Safes.
Incandescent Lamps.
India-rubber Wringers.
Injectors.
*Iron Boiler Tubes, Buildings, *Castings, *Flanged Gland Taps, Mill Gearing Castings, *Roofs, Valves, *Wire.
Jewellers' Machine Tools.
Joiners' Machines.
†*Joist Work.
Lace Winding Machinery.
Lager Beer Machines.
*Lathes.
Lawn Mowers.
*Leather Machinery.
*Light Locomotives, *Rails, Railway Material, *Wagons. 733
*Lock Castings, *Fittings.
*Machine Tools.
*Magneto Machines for Motors.
*Malleable Iron Fittings.
†*Marine Shafting, *Engine Forgings.
Metal Turning Lathes.
Mill Gearing.
*Milling Cutters, *Machines, Reamers.

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* Also stated to be imported below cost in this country.
† Also stated to be imported below cost in country of origin.

Imports competing with British Products

Germany *—continued*

734 Millwright Work.
*Mining Machines.
Mining Machinery, *Appliances, *Wagons.
*Mixing Machines.
*Models.
*Motor Bicycles and Parts.
Motor Carriages.
Motor Cars and *Parts.
Motor Starters.
*Motors and *Parts.
Moulding Machines.
Moulding Presses.
*Mowers and *Mowing Machines.
Muntz's or Yellow Metal Sheathing.
Needle-Making Machinery.
*Oil Cups, *Motors, Separators.
735 *Paint Mills.
Paper Cutting Machinery.
†Paper Machine Wire and *Cloth.
Paper Making Machinery.
*Paper Strainers.
*Paring Machines.
*Passenger Lifts.
*Permanent Motors.
*Petrol Motors.
*Photographic Scales.
*Pinions.
*Pipe Machines.
Pipe Wrenches.
Pipes.
Planing Machines.
*Plated Steel Beams, *Girders, *Joists.
*Plough Castings.
736 *Ploughs.
Plug Taps.
*Polishing Machinery.
Portable Railways.
Potato Separators.
Pressure Fans and *Gauges.
Printers' Machinery.
*Pug Mills.
Pulleys.
*Pulp Strainers.
†*Pumps.
*Radiator Valves.
Radiators.
Railway Construction Plant, *Crossings, Material, *Switches, Tyres, *Wheels and Axles.
*Rakes.
*Ratchet Braces for Drilling.
*Reaping Machines.
*Reaper Castings.
Reducing Valves.
Refrigerating Machinery.
Refrigerators.
*Retort Bevel Iron Work.
Rheostats.
Rock Drills.
Rolled Iron.
*Rollers for Plate Bending Machines.
†Rolling Mills.
Roofs and *Roof Work.
Root Cutters.
Rotary Knives.
Rubber Cables for House Wiring.
Rubber-insulated Copper Cables.
Sailing Vessels.
Screwing Chucks.
Screwing Taps.
*Seamless Steel Lifeboats.
Seed Dressing Machines.
*Sewing Machines.
*Shafting, Cranks, Tail and Intermediate.
*Shaping Machines.
Sheet Iron.
*Shipping.
Small grindstones, Marine Machinery, Oil Engines, *Steam Craft, *Tools.
Smith's Tools.
*Soapstone Packings.
*Stanchions.
*Stationery Cutters, Punches, Machinery.
Steam Appliances, *Engines, *Fittings, *Gauges, *Pumps, Traps, Valves.
*Steel Bars, *Boiler Tubes, *Buildings, †*Castings, *Crank Shafting, †*Forgings, *Gas Cylinders, †*Girders, *Ingots, †*Joists, *Lifeboats, †*Magnet Castings, *Rails, *Roofs, *Screw Shafting, †*Shafting, *Sleepers, *Structural Work, *Tipping Trucks and Wagons, *Tubing, *Tyres, *Wagons, *Wire, Workshops.
Stereotyping Machinery.
*Stocks for Threading.
*Stone Breaking Machinery.
Stone Working Machinery.
Stop Valves.
*Tanks.
*Taps for Threading.
Tea Leaf Manufacturing Machines.
Telegraphic Apparatus.
*Telephone Apparatus, Cables, *Instruments.
*Terned Steel Ice Moulds.
*Textile Machines.
Threshers.
Tile Machines.
*Tools.
*Trip Scales.
Transformers
*Tube Mills.
Tube Wrenches.
Tug Steamers.
Tumbler Switches.
*Turned Shafting.
Turning Mills.
Turnip Drills and *Sowers.
*Tuyère Nozzles for Blast Furnaces.
*Twist Drills.
*Union Scales.
†*Valves.
Vacuum Pans.
Ventilating Fans.
Vices.
Wagons.
Water Fittings, *Softeners, Turbines, *Valves.
Web Glazing Calenders.
Welded Tubes, Weldless Steel Tubes.
*Wheel Valves.
Wheels.
Winnowing Machines.
*Wire Billets, *Cards for Flannelette Raising, *Healds, Machinery, Ropes, *Stitching Machines.
Wood Turning Lathes.
*Wood Working Machinery.
†*Wrought Iron Tubes, *Fittings.
†*Yellow Metal Sheathing.

737 **United States** UNITED STATES:—

Aerial Wire Ropeways.
*Agricultural Binders, Boilers, *Drills, *Implements, *Machinery, *Rollers.
*Air Compressors.
Alternators.
Anvils.
Apothecaries' Scales.
*Arc Lamps.
Asbestos Packing.
*Automobile Boilers.
Band Saws.
*Barge Builders' Gear.
Barrows.
Baths.
Bearings.
Binders' Machinery.
Blowing and Ventilating Fans.
*Blowing Engines.
*Board-making Machines.
Boats.
*Boiler Fittings.
†*Boilers, for Locomotives, Radiators, Steam Heating Apparatus.
Bolts and Nuts.
*Boot and Shoe Machinery.
Boring Machinery.
Boring Mills.
*Bosh Coolers.
*Bottle Fittings.
*Box-making Machinery.
*Brass and Iron Cocks, Taps, †*Valves.
Brass Castings, *Fittings, *Lubricators, *Steam Valves.
*Brick Dies.
*Brick-making Machinery.
Brick-pressing Machinery.
*Butter Churns.
Butter Workers.
Cables.

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* Also stated to be imported below cost in this country.
† Also stated to be imported below cost in country of origin.

Cableways.
Carbons for Arc Lamps.
*Cast Iron Heating Boilers, Pipes, *Steam Valves.
*Castings.
*Cement-making Machinery.
*Chaff Cutters.
Chemical Machinery.
Coal-conveying Machinery.
*Coal-cutting Machinery.
Coal-washing Machinery.
*Coffee Mills.
Collapsible Gates.
*Conveying Plant.
Copper Castings.
Corn Crushers.
Corn Dressing Machines.
†*Counter Scales.
Cream Separators.
†Cranes.
Cultivating Implements.
*Cultivators.
*Cycle Balls, *Free Wheels, *Pedals.
†*Cycles.
Dies for Threading.
*Disc Valves.
Dispensing Scales.
Domestic Machinery.
*Drilling Machines.
Driving Engines.
*Duplex Pumps.
*Dynamos.
Ejectors.
Electric Appliances, Cranes, *Driving Engines,*Dynamos, *Fittings, Generators, †*Machinery, †*Motors, *Overhead Equipment, Switches, Tramways.
†Electrotyping Machinery.
*Elevators.
*Emery Wheels.
Engine Fittings.
Engineering Appliances.
*Engineers' Tools.
†*Engines.
Feed Pumps.
Field Rolls.
Files.
Fire-proof Pipe Coverings.
*Forks. (Agric.)
Fret Machines.
Fur Sewing Machines.
*Garden Barrows.
Gas Engines, *Tubes.
Gearing.
Girders.
*Glazing Calenders.
*Globe Steam Valves.
Governors.
*Grain Cleaning, Sifting and Sorting Machinery.
*Granite Working Machinery.
*Grapes.
Grass Mowers.
*Grubbers.
Guillotine Knives.
*Gun Metal Cocks, *Fittings, *Taps; *Fullway, *Wheel, *Steam, *Water, &c., Valves.

Hack Saw Machines.
Hand Pumps.
†*Harrows.
*Harvesting Machinery.
*Hay Makers, *Rakes, *Tedders.
*Heating Apparatus.
Heavy Iron and Brass Castings.
*Horse Clipping Machines, Harrows, *Hoes, *Plates, †*Rakes.
Hosiery Machinery.
Hospital Tables.
Hot Water Boilers and Generators.
*Hydraulic Engines, Organ-blowing Engines.
*Hydro Extractors.
*Ice Safes.
India-rubber Manufacturing Plant.
*India-rubber Wringers.
*Injectors.
*Insulators, for Overhead lines, &c.
*Iron Boiler Tubes.
*Iron Buildings and *Roofs.
Iron Valves and *Wire.
*Ironing Machinery.
Jewellers' Machine Tools.
Joinery Machines.
*Lathe Chucks.
†*Lathes.
†*Launch Hulls.
*Laundry Machinery.
Lavatories and Fittings.
*Lawn Mowing Machines.
*Leather Machinery.
†Lifts.
Light Locomotives, Railway Material, and Railways.
Linoleum Printing Machines.
Lock-up Safety Valves.
†*Locomotives.
*Lubricators.
†*Machine Tools
*Machinery.
*Malleable Iron Fittings.
Manganese Points and Crossings.
Mangles.
*Meat Choppers.
*Metal Wheel Valves.
Mill Gearing.
*Milling Cutters.
Milling Machines.
*Mincing Machines.
*Mining Machinery, *Engines and Appliances.
*Mixing Machinery.
*Models.
Motor Bicycles.
*Motor Cars and *Parts
Motor Launches.
Moulding Machines, Presses.
*Mowers.
Mowers and Reapers.
*Mowing Machines.
Oil Cups, † Economisers, Engines, *Motors, *Separators, *Storage Tanks.
*Paint Mills.

Paper Cutting Machinery. 738
Paper Hangers' Tools.
Paper Making Machinery.
*Paring Machines.
*Petrol and Heavy Oil Motors.
*Petrol Launches and *Motors.
*Pipe Wrenches.
*Pipes.
Planing Machines.
*Platform Weighing Machines.
Pleating Machines.
*Plough Castings.
*Ploughs.
Potato Separators.
Pressure Fans.
Pressure Gauges.
Printers' Machinery.
*Pug Mills.
Pulleys.
*Pumping Machinery. 739
†*Pumps.
*Quarrying Machinery.
*Radiator Fittings and *Valves.
†*Radiators.
Railway Appliances, *Construction Plant, Crossings, *Switches, Turntables, *Wagons, †Wheels.
*Rakes.
Ratchet Braces for Drilling Iron and Steel.
*Reaper Castings.
*Reapers.
*Reapers and Binders.
*Refrigerating Machinery.
Rock Boring Machinery.
*Rock Drills.
Rolled Iron. 740
Root Cutters.
Rotary Knives.
*Scarifiers.
Sectional Boilers.
Seed Dressing Machines.
*Self-binding Harvesters
*Sewing Machines.
†*Shafting.
*Shaping Machines.
Sight-feed Lubricators.
*Silk Machinery.
*Slate Working Machinery.
Slotting Machines.
*Small Boilers, Oil Engines, Saw Benches, †*Tools.
*Smiths' Tools.
Sowing Machinery.
Spokes. 741
Springs for Tram Cars.
Stationary Engines and *Machinery.
*Steam Boilers, *Economisers, *Engines, *†Fittings, Generators, Hammers, Heating Apparatus, *Pumps, *Tubes, *Valves,
†Steel Bars, *Boiler Tubes, *Buildings, †*Girders, †*Joists, †Plates, *Rails, *Roofs, *Shafting, *Sleepers, Tubes, *Tyres, *Wagons, *Wire.
Stereotyping Machinery

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* Also stated to be imported below cost in this country.
† Also stated to be imported below cost in country of origin.

742 **Imports competing with British Products**

United States *—continued*

Stocks.
*Stone-breaking Machinery.
*Stone-working Machinery.
Swath Turners.
Tablet Machines
Taps for Threading.
Tea Leaf Machines.
Tedders.
*Telephones and *Accessories.
Threshers.
Tipping Wagons.
*Tools.
Traction Engines.
*Tram Car Fittings, †Wheels.
*Tube Wrenches.
Turning Mills.
*Turnip Sowers.
*Tuyère Nozzles.
*Twist Drills.
Typewriters.
*Typewriting Duplicators.
†*Union Scales.
Ventilating Fans.
Ventilators.
Vices.
Vulcanisers.
*Wallpaper Trimming Machines.
*Washing Machinery.
Water Cranes, Fans, Fittings, Gauges, Meters, *Softeners, Taps, Tubes, Turbines, Valves.
Web Glazing Calenders
Weighing Machines.
Welded Tubes.
*Wheel Valves.
Wheels.
*Wind Motors.
Winnowing Machines.
*Wire Ropes.
*Wire Stitching Machines.
Wood-box Making Machinery.
*Wood-working Machinery.
*Wringers.
*Wringing Machinery
*Wrought Iron Fittings, Pipes, †*Tubes.

Belgium

BELGIUM :—

743 Aerial Cableways.
*Arc Lamps.
*Bar Iron.
*Bargebuilders' Gear.
*Bicycles and Parts.
Billets.
*Brickmaking Machinery.
*Butter Workers.
*Cast Iron Pipes.
*Cast Steel Centres for Railway Wheels.
*Castings.
*Cement-making Machinery.
*Coal Washing Machinery.
Compound Girders.
Condensers.
*Constructional Iron and Steel Work.
Cultivators.
744 *Cycles, *Frames and *Parts.
*Disc Wheel Centres.
†*Dynamos.
Electric Appliances, Generators, *Machinery, †*Motors, Switches.
Engineering Appliances.
Feed Water Heaters.
*Forgings.
*Galvanised Steel Ice Moulds.
*Girders.
Gun Metal Fittings.
*Harbour Plant.
*Haysheds.
Iron Bars, *Buildings, *Casements, *Columns, *Doors, *Roofs, *Sashes *Wire.
*Joist Work.
Lawn Mowers.
Light Locomotives.
Light Railways.
*Light Steel Rails.
*Marine Shafting.
Mill Engines.
*Mining Appliances, Machinery, *Wagons.
*Motor Bicycles and Parts.
*Motor Cars and Parts.
Passenger Steamers.
*Plated Beams, *Girders, Steel Joists.
Ploughs.
Radiators.
†Railway Carriage Axle Boxes.
Railway Material.
*Railway Tyres and Axles.
*Railway Wheels.
Reducing Valves.
*Rolled Steel Girders, *Joists, *Stanchions.
*Roof Couples.
Roof Work.
*Slate Working Machinery.
*Small Marine Engines, Marine Machinery, Saw Benches.
Steam Traps.
Steamers.
*Steel Barges.
†Steel Bars, *Buildings, Casements, Columns, Doors, †*Girders, †*Joists, †Plates, *Rails, *Railway Crossings and *Switches, *Roofs, Sashes, *Sleepers, Stanchions, *Structural Work, Wagons, *Wire.
Stoneworking Machinery.
Tanks.
*Telephone Instruments.
Terned Steel Ice Moulds.
Tipping Wagons.
Tramway Castings.
Tugs.
*Wagon Axles, *Tyres.
Water Meters.

France

FRANCE :—

Air Compressors.
Anvils.
Asbestos Packing.
*Assay and other Balances.
*Ball Mills.
*Bicycles.
Boilers.
745 Bolts and Nuts.
*Boot and Shoe Machinery.
Brass Castings for Electric Work.
†*Brass Tubes.
*Cast Iron Pipes.
Castings for Electric Light Fittings.
*Chemical Balances.
*Clocks.
Copper Castings for Electrical Work.
†*Copper Tubes.
*Counter Machines.
*Dispensing Scales.
*Drilling Machines.
Electric Accessories.
Engineers' Tools.
*Files.
*Flexible Wire.
*Garden Seats.
Girders.
*Goods Lifts.
Governors.
Grinding Machinery.
Gun Metal Castings and Fittings.
Gyratory Crushers.
Heavy Oil Motors.
*Horse Clipping Machines.
Hosiery Machines.
Hospital Tables.
Injectors.
Iron Castings.
*Jacquard Machines.
Jewellers' Machine Tools.
*Lathes.
Light Railways.
*Lock Castings, *Fittings.
Machine Tools.
Magneto Machines for Motors.
Metal Turning Lathes.
Motor Bicycles and Parts.
*Motor Cars and Parts.
*Motors.
Moulding Machines.
Moulding Presses.
*Oil Motors.
†*Paper Machine Wire Cloths
†Paper Machine Wires.
*Passenger Lifts, Steamers.
*Petrol Motors.
*Pipes.
*Plough Castings.
Pressure Gauges.
Pulleys.
Pumping Machinery.
Pumps.
*Railway Wheels and Axles.
*Reaper Castings.
Refrigerating Machinery.
Rolled Iron.

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* Also stated to be imported below cost in this country.
† Also stated to be imported below cost in country of origin.

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*Rubber Tyres.
*Sailing Ships.
Shafting.
*Slate Working Machinery.
*Smiths' Tools..
Spindles.
*Steamers.
*Steel Castings, *Rails, *Tyres, Wire.
Stone-working Machinery.
*Trip Scales.
*Tube Mills.
*Tugs.
*Tyres.
*Union Scales.
Valves.
Vices.
*Wire Billets.
Wood-turning Lathes.

Continent generally

CONTINENT GENERALLY:—

*Agricultural Machinery.
Alternators.
Arc Lamps.
Cables.
Castings for Builders and Ironmongers.
Cycle Frames.
Drilling Machines.
*Dynamos.
*Electric Appliances, Instruments, *Motors, Switch Gear, Switchboards.
*Electrically-welded Steel Casks.
Hack Saw Machines.
High Speed Engines.
†Iron Barrels.
Lathes.
Machine Tools.
Milling Machines.
*Motor Cars.
Petrol Motors.
Pipe Wrenches.
Railway Machinery and Plant.
Steam Hammers.
*Steamships.
†Steel Barrels, †*Steel Castings, †*Crank Shaft Parts, *Girders, *Joists, *Plates, †*Tunnel Shafting.
Transformers.
Valves.
Water Gauges.

747

Canada

CANADA:—

*Agricultural Drills, *Implements, *Rollers,
*Binders.
*Butter Churns.
*Butter Workers.
Chaff Cutters.
Corn Crushers.
*Cultivators.
Elevators for Hay.
Engines.
*Grass Mowers.
Grubbers.
*Harrows.
Harvesting Machinery.
*Hay Tedders.
Haymaking Machines.
Heating Boilers.
*Horse Hoes, *Plates, *Rakes.
*Mowers and *Mowing Machines.
Oil Engines.
*Ploughs.
Potato Separators.
Pumps.
*Radiators.
*Rakes.
*Reapers and Binders
Root Cutters.
*Selfbinders.
*Spring Harrows.
Swath Turners.
Tedders.
Threshers.
Turnip Drills.
*Turnip Sowers.
Water Tube Boilers.
Weighing Machines.
*Wind Motors.
*Wringing Machines.

748

Austria

AUSTRIA:—

Arc Lamps.
†Arc Light Carbons.
Asbestos Packing.
Carbons.
Cultivators.
Dynamos.
Electric Accessories, Batteries, Bells, Generators, Heating Apparatus, Measuring Instruments, Medical Apparatus, Motors, Switches.
Engineering Appliances.
Incandescent Lamps.
Lawn Mowers.
Light Locomotives.
Mining Appliances.
Ploughs.
Steel Wagons.
Telegraph Apparatus.
*Telephone Apparatus.
*Telephones.
Tipping Wagons.

Switzerland

SWITZERLAND:—

Brushmaking Machinery.
*Dynamos.
Electric Appliances, Generators, *Motors, Switch Gear.
Embroidery Machines.
Engineering Appliances.
Engines.
*Goods Lifts.
High Speed Engines.
*Large Electric Generating Engines.
Light Locomotives.
Mill Engines.
Mining Appliances.
*Passenger Lifts.
*Pumps.
*Steam Engines.
Steel Wagons.
Tipping Wagons

749

Holland

HOLLAND:—

*Barges.
Cargo Steamers.
Corn Dressing Machines.
*Cycles.
Dredgers.
*Emery Wheels.
Hoppers.
Sailing Vessels.
Seed Dressing Machines.
Separating Machines.
*Ships.
*Steamship Hulls
*Steamships.
*Steel barges.
*Tugs.
Winnowing Machines.

Italy

ITALY:—

Asbestos Packing.
*Dynamos.
*Electric Motors.
*Engines.
Heavy Brass and Iron Castings.
Mill Gearing.
Millwright Work.
Motor Cars.
Pulleys.
Rubber-insulated Copper Cables.
Shafting.
Small Oil Engines.
Stationary and Steam Engines.

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* Also stated to be imported below cost in this country.
† Also stated to be imported below cost in country of origin.

750 **Imports competing with British products**

Denmark

DENMARK:—

*Ball Mills.
Cement Machinery.
†Forgings.
Grinding Machinery.
Gyrating Machinery.
Iron and Steel Vessels.
*Marine Shafting.
*Steel Castings.
*Tube Mills.

Sweden

SWEDEN:—

Band Saws.
Cargo Steamers.
Pumps.
Sailing Vessels.
*Telephones, *Accessories, *Instruments.
*Weldless Steel Tubes.

Countries not Specified

COUNTRIES NOT SPECIFIED:—

Aerial Ropeways.
Agricultural Implements, Machinery and Parts.
Air Compressors.
Arc Lamps.
†Bar Steel.
†Barges.
751 Bicycles.
Boilers.
Bookbinders' Machinery and Tools.
Bottling Machinery.
†*Brakes.
Brass Bearings, Castings, Gas Fittings, †Tubes.
Brewers' Plant.
Brick Making Machinery.
Bridges.
Cage Hoists.
Calenders for Paper Mills.
Carbonising Plant.
Castings.
*Cast Iron Columns, Pipes, Tanks and Boilers.
Chaff Cutters.
752 Channels.
Chemical Plant.
Chocolate Mixers.
Clay-working Machinery.
Coal-washing Plant.
Colliery Castings, Trams
*Composition Belting.
Conveying Machinery.
*Copper Tubes.
Cutters for Paper Mills.
Cycle Accessories.
Drilling Machines.
*Dynamos and *Brushes.
Electric Apparatus, *Brass Work, Fittings, Lamp Holders, Light Accessories, †*Machinery, Meters, *Motors, Storage Battery Plates, Switches.
753 Elevating Machinery.
Emery Grinding Machinery.
Engineers' Tools.
*Engines.
Filter Presses.
†Flexible Wire.
*Forgings.
Gas Engines, Exhausters, Producing Plant, Stoves, Valves.
†*Gun Metal Steam Fittings and *Valves.
*Hard Steel Balls, *Grinding Plates.
*Hydraulic Engines.
*Iron Girders, Pipes, Tubes, Ships.
Joists.
Jacquard Machines.
Knitting Machines.
Lathe Chucks.
*Launches.
Laundry Machinery
Lifts for Mills.
Lithographic Machinery.
Machine Combs.
*Machine Tools.
Machines.
Marine Machinery
Masts.
Metal Capsules
*Mining Trucks
*Model Engines.
Motor Bicycles, *Cars, Lorries, Vans.
*Motors.
*Mowing Machines.
Oil Engines.
Paper Machines
Ploughs.
Power Looms.
Presses for Oil and Colour Making.
*Printing Machinery.
Pumping Machinery.
Pumps.
Quarry Machinery.
Refrigerators for Brewers.
Rivet Bars.
Rolled Iron Bars, *Joists.
*Rolled Steel Girders, †Joists, Stanchions.
Roofs.
Rubber Tyres.
Ruling Machines.
Satinette Machinery for Confectionery.
Shipbuilding Sundries.
Silk Weaving Machinery.
Slate Working Machinery.
*Small Steam Engines and *Boilers.
Spinning Machinery.
†Spring Clips.
Stanchions.
Steam Derrick Cranes, Engines, †Fittings, Pumps.
Steamships.
Steel Rail Machinery, Shafting, *Beams, *Castings, *Girders, Pipes, *Sheets, Structural Work, Tanks and Boilers.
*Stone-breaking Machinery.
Strainers for Paper Mills.
Sugar Refining Plant.
Switch Boards.
Tanks.
Tea Presses.
Telegraph Apparatus.
Telephone Apparatus.
Textile Machinery.
Tile Making Machinery.
Tinplate Works Castings.
*Tipping Wagons.
*Tools.
Tracing Wheels.
Travelling Cranes.
*Tricycles.
Turbines.
Tyres.
Water Valves.
Weaving Machinery.
†Wheel Plates.
†Wire.
Woodworking Machinery.
Wrought Iron Tanks and Boilers.

Sources of Supply

(B) SOURCES OF SUPPLY ‡

QUESTION 3 (FORMS IV., VI., VIII.):—*Give particulars of the principal supplies of the materials, raw and partly manufactured, required in your industry, and state from what countries they are derived?*

QUESTION 4 (FORMS IV., VI., VIII.):—*State if any of the above-mentioned materials, now imported from foreign countries, were formerly obtained in the United Kingdom and if so what has caused the change?*

Engineers.

We are offered from Germany and Belgium steel plates, bars, beams and steel forgings at from 20s. to 45s. per ton cheaper than we can buy from our home makers but these we have hitherto refused, as the low price quoted is only offered to injure British steel makers. and if possible capture their trade, German engineers paying a higher price than their manufacturers quote in this country. And further, these importations do not require to pay local rates in any shape, such as are levied on home manufacturers. 754

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* Also stated to be imported below cost in this country.
† Also stated to be imported below cost in country of origin.
‡ It has not been thought necessary to insert more than a few of the answers received.

Boiler Makers.

The continental makers supply light tank plates under $\frac{3}{16}$ in. thick at 10 to 20 per cent. below British prices as basic steel answers all right for that class of work. The American and continental boiler tubes are better than those now obtained in England, in addition they supply steel tubes at a lower price than British iron tubes—the iron tubes crack in expanding owing to the bad quality of the iron.

Hydraulic and Sanitary Engineers.

The raw materials we use are pig-iron, copper, tin, sand, coke, coal, &c., also about £500 of india-rubber per month partly manufactured, shafting, girders, bar and sheet iron, tool steel, chains, &c. Our rubber comes from Brazil or the Congo. Girders we buy from merchants, we at times buy Belgian or German which are quoted a few shillings cheaper than British. Generally we prefer to pay the higher price for British. All the other material we use is British. We are informed by the forges here that they used to supply a large quantity of shafting to the Clyde shipbuilders at £14 per ton. Of late the Germans have been supplying them at £11 per ton, charging £18 in Germany.

Makers of Traction Engines, &c.

As a rule our material is British but bright drawn iron and steel rods we have in recent years purchased from Germany. The change has been caused by the application of modern machinery in Germany for drawing small iron and steel rods, and in our opinion the protective tariffs in their own country enable them to undersell with a somewhat superior article in our markets. 755

Crane Maker

I have always purchased rolled joists and channels from Germany except when British goods are specified. The price is lower owing to bounties I believe, but what I would specially note is that for my small orders I get much better attention in every way by ordering direct from Germany than I do from British manufacturers.

Manufacturers of Gas Burners, Ventilators, &c.

We know we can buy some metals a little cheaper abroad, but we prefer the English article. Most of our glass we obtain from Germany and Belgium in consequence of its cheapness and not its quality. Thorium cannot be bought from anywhere but from Germany owing to a market ring. Steatite we used to obtain from Germany until they forced a ring and put up the price so much that we were obliged to seek another market for it, and we found we could obtain it from Austria at a fair price, and we have continued to deal with them ever since. There is no steatite to be obtained in England.

Boat Builder, &c. 756

Nails and screws can now be obtained from Germany at about 25 per cent. less than the average British price. This refers more particularly to brass screw nails and iron wire nails and is caused by a determined effort on the part of German manufacturers to obtain a sure footing in our market. Should this be obtained prices will rise. An increasing quantity of yacht, &c., fittings, more particularly of "patents," is now being imported from the United States. American makes of launch motors have proved themselves in our experience to be much superior to British makes.

Telegraph Wire Manufacturers.

India rubber from Brazil, Congo and West Africa; gutta percha: East Africa, Australasia, and Singapore; iron wire: England and Germany; copper wire: United States, Spain, Germany, France, and England; jute: India; hemp: Russia and India; palm pitch: Africa; ozokerit: Hungary and Germany; carbon: England; cotton: Manchester and America; chemicals: England and Germany; lead: bought in English market; manganese: Sweden. Iron wire was formerly obtained exclusively in England at about £30 per ton. now better quality from £14 to £18 per ton is obtained from both England and abroad, principally Germany. Germany initiated the improvement in the manufacture and so got most of the trade.

Manufacturers of Laundry Machines, &c.

Cast metal in iron and brass, steel, malleable iron, obtained at home; wood, partly home, but chiefly from United States, Canada, Burmah and the Baltic; zinc from the Continent; rubber, home and America. So far as the main materials in use in our manufactures are concerned no important changes have taken place, but we now use a considerable amount of small articles such as screws, bolts and nuts, glass-paper, &c., made abroad, as well as hand and power tools, all of which were made at home a few years ago. No doubt the chief cause of the change is price. 757

Asbestos Goods Makers, &c.

Articles of primary manufacture are mainly imported from Italy, Germany, France, and America. Yarn, cloth, millboard, paper, &c., are imported into England to a far greater extent than they are manufactured here because under the conditions prevailing they cannot be produced so cheaply. These goods are here worked up into various articles required by consumers, such as proofing with rubber and making up into steam packings, jointing materials, &c. This secondary manufacture is mainly done in England.

Asbestos Goods Manufacturers.

Crude asbestos from Italy and Canada. Asbestos is also obtained from Siberia and South Africa, but these are inferior qualities. The bulk of the supplies comes from Canada.

758 **Foreign Competition at Home**

(c) Foreign Competition at Home

Form I., Question 4: *Are any articles similar to those manufactured by you imported into this country below your cost price? If so, please state particulars as far as you can.*

Form I., Question 5: *Have you any information leading you to conclude that such imported articles are placed upon the British market at or below the normal cost of production in the country of origin? If so, please state particulars as far as you can.*

Structural Engineering

C. E. Hall, 58, Fosters Buildings. 22, High Street, Sheffield; Manufacturing Mining Engineer.

In some articles of commerce or machinery and notably in iron girders and some machines the foreigner will sell to cover cost because it enables him to keep the works going in the home trade at paying prices and the surplus is sent here free as a free dumping ground.

Head, Wrightson & Co., Ltd., Teesdale Ironworks, Thornaby-on-Tees; Engineers and Bridge Builders, &c.

We cannot say that imported articles are placed on the British market below the normal cost in the country of origin. It is very difficult to obtain detailed costs of work in foreign countries.

Steel structural work and roofs for warehouses come from Belgium and electric power stations are equipped by Germany and America. 759

Firm No. **160.** Iron and Steel Bridge Builders.

We do not manufacture stock articles and as structural work varies so much in design and construction it is impossible to say where foreign competition comes in. There are however important iron and steel structures erected in England where the chief items are rolled steel girders and stanchions which in many cases are obtained from the foreigner to the exclusion of the English makers. This means a large loss of wages to the rolling mills and constructional engineers.

The Alnwick Foundry and Engineering Co., Alnwick; Galvanised Iron Buildings and Constructional Work Manufacturers.

Belgium can deliver roof couples and haysheds at Newcastle from 5s. to 15s. per ton below our price. For the erection of a steel works shop in South Wales we gave the lowest British tender at £5,100, but a Düsseldorf firm took the order at £4,450.

Joists can be and are bought f.o.b. Antwerp at £4 4s. 6d. for moderate quantities, £4 2s. 6d. for large, the price in Germany for home consumption being about £5 19s. to £6 3s. 6d. so that the net value received for these export joists at German works will be £4 2s. 6d., less at least 5s. per ton for carriage, probably 7s. 6d., making the value received £3 17s. 6d. a difference of £2 1s. 6d. to £2 6s. rebate on export material. Joists at present price of pig iron in Germany cannot be produced for less than £5 5s. to £5 10s. 760

The Phœnix Foundry Co., Ltd, Derby; Engineers, Iron Founders, &c.

Constructional work in steel is imported into London finished and erected at less than our cost price in England. The whole of the steel constructional work in connection with buildings at Chelsea for electrifying the District Railway came from Germany. The steel dome for the new Admiralty buildings came from Germany.

Firm No. **471.** Engineers and Founders.

Steel girders and plates were formerly all obtained here; those from the Continent are cheaper than can be obtained here.

J. Fraser and Son, Ltd., Millwall Boiler Works, London, E.; Manufacturers of Steel Boilers, Storage Tanks, Steel Pipes.

A certain amount of riveted girder work coming from Belgium and Germany is imported at a lower price than we can manufacture, but on the other hand we do not lay ourselves out for girder work particularly.

John Hayes, 11, Church Street, Carnarvon, N. Wales; Civil Engineer.

It is notorious that from Belgium and the United States steel plates, bars, girders, joists, &c., are imported into this country at or below prices at which they can be produced in the country of origin. 761

J. Heald, Ltd., Phœnix Foundry, Chorley, Lancs.; Engineers and Ironfounders.

We can buy foreign rolled steel joists delivered at our railway station here from £1 to £1 2s. per ton cheaper than English.

Firm No. **1,591.** Ironfounders, &c.

Twenty years ago very few joists were rolled in this country, now a large quantity. Steel angles, tees, plates, can be obtained as cheaply in this country as abroad, quality being equal.

Firm No. **809.** Gas Engineers.

Joists are imported from Belgium and German firms are now erecting retort-bench ironwork in the south of England below our cost price.

Smith, Walker & Co., 37, Old Queen Street, Westminster, S.W. Constructional Engineers.

Constructional steel and ironwork of every description such as rolled steel joists, girders, stanchions, and iron columns (wrought and cast), roofs and iron doors, sashes and casements, are imported into this

country from Belgium largely below our cost price—20s. to 25s. per ton cheaper than can be obtained in 762
the United Kingdom.

Firm No. **1,534.** Engineers and Founders.

Steel ingots for forging-makers and forgings for engineers and shipbuilders are imported from Germany; electrical machinery from Germany and United States, and steel castings from Germany, below our cost price. Some of our customers inform us that if we supplied the ingots for nothing they could not book the orders against the low prices which the Germans are taking for finished forgings.

Shelton Iron, Steel and Coal Co., Ltd., Stoke-on-Trent, Staffs; Manufacturers of Steel Girders and Joists, &c.

We are continually competing unsuccessfully for business against foreign material owing to the latter being delivered in this country at prices under those at which we can manufacture the goods. The year 1903 was a notable one in this respect, the competition between British, American, German and Belgian makers having been excessively keen. Steel girders and joists are imported below our cost price, and are sold cheaper here than in the country where produced and the makers are compensated by the better prices obtainable at home owing to their tariffs which protect their home trade. The plants in Belgium, Germany and United States are of modern equipment and capable of producing more than their normal
home consumption therefore with the object of keeping these works fully employed they send their surplus 763
here. Agents representing Belgian and German houses have asked for offers for lots they have to dispose of.

Glengarnock Iron and Steel Co., Ltd., 127, St. Vincent Street, Glasgow; Manufacturers of Joists, Girders, &c., in Mild Steel.

The price which home consumers have to pay at the makers' works in Belgium and Germany is fully 25 per cent. more than f.o.b. price Antwerp when being shipped to this country.

Lanarkshire Steel Co., Ltd., Flemington, Motherwell, N.B.,; Manufacturers of Steel and Sectional Material for Ship and Bridge Building, &c.

From our own experience we are quite satisfied that after allowing for carriage, freight and charges from the foreign works to this country the net price realised by the foreign manufacturer must be much below his actual cost. We compete with foreign manufactures delivered in this country about and under our cost price. As a rule we can only supply where inquiries stipulate that the materials must be of British manufacture. The value of these materials in this country is dominated by the prices at which they are constantly being offered for sale from the United States, Germany or Belgium.

R. Traill & Co., Vulcan Foundry, 178, Bonnington Road, Leith; Manufacturers of Steel Beams and
Girders and Cast Iron Columns. 764

Steel beams and girders are imported into this country at about 20 per cent. below our cost price. The same also may be said of cast iron columns.

Electrical Engineering.
General

Firm No. **548.** Electrical Engineers and Contractors.

We are agents for a large manufacturing firm in the United States employing about 3,000 hands who supply us with large consigned stocks of materials which are paid for after they are sold by us to our customers. Very often these large stocks are kept in hand in London for a considerable period after which in many cases the price is reduced to get a sale on the British market below the normal cost of production in the country of origin.

Firm No. **987.** Manufacturing Electrical Engineers.

The only proof we have that articles are imported into this country at or below the normal cost of production in the country of origin is that we get articles offered to us at a price which does not exceed our cost for labour and material, without any allowance for general factory charges, administration or profit.

Firm No. **784.** Electrical Engineers.

There are several German articles being sold at about 30 per cent. less than I want for my goods
which are used for the same purpose. There is no comparison between the two qualities, my work being 765
the best that can be produced.

We are agents for a large electrical firm in Switzerland and import a fair quantity of their manufactures which we cannot manufacture here at the price they can sell at.

I am compelled to sell (as accommodation to my customers) about £100 worth of goods per annum at no profit whatever and of course take the risk of bad debts. The competition in these lines is practically all German.

Firm No. **488.** Manufacturers of Overhead Line Material, &c., for Electric Tramcars.

We know of one concern in America which six years ago was established to supply insulators and which has lost over 200,000 dollars besides going through four hands and yet this concern only employed 20 hands. We know the prices at which they sold goods were below the actual costs, the concern was closed down and we purchased some of the plant for our own works.

H. J. Coles, London Crane Works, Derby; Crane Maker.

I do not know of any general competition although I think a large electric crane for Dublin Harbour has been taken by a German firm at what appears to me very considerably below cost judging by what has

766 **Foreign Competition at Home**

Electrical Engineering —*continued.* *Electric Plant and Machinery*

appeared in the press. I should say this Dublin crane was more as an advertisement than as general competition.

Firm No. **1,396.** Manufacturers of Electrical Machinery.

A Belgian electric manufacturer whose dynamos and motors have been sold in considerable numbers in this country at very low prices, lost on last year's trading about 500,000 frs. on a capital of 3,500,000 frs. It has been admitted by the German electrical manufacturers that their export trade during the last two years has been at prices that were not remunerative and we have reason to believe that the American manufacturers not infrequently quote, delivered English port, prices considerably lower than their normal selling price for home trade.

W. C. Mountain, Scott and Mountain, Ltd., Close Works, Newcastle-on-Tyne; Electrical Engineers.

The Germans are sending into this country a considerable quantity of electrical machinery dynamos and motors for central station work, and also a large number of electrical accessories for the use of manufacturers, iron works and collieries. As one example we may mention the machinery supplied to the Manchester Corporation for their tramways, which was taken at fully 30 per cent. below any English firm by the Allgemeine Elecktricitäts Gesellschaft, of Berlin.

767 East Anglian Engineering Co., Ltd., Stowmarket, Suffolk; Electrical Engineers.

All electrical machinery imported into this country is sold in our markets below British cost of production with the exception perhaps of foreign patented specialities which under an import duty would probably be manufactured in this country.

The quality of imported electrical machinery competing with my production is generally much inferior, consequently it is owing to prices being lower than our cost of production that the imported goods obtain a footing. We are reputed to pay 25 to 30 per cent. higher wages than German manufacturers of electrical machinery and our men work 10 hours per week less. In my estimation no other cause need be looked for so far as Germany is concerned. American manufacturers can afford to sell at below cost of production if need be in our markets, by reason of securing a higher price in their own home market.

Firm No. **956.** Electrical and General Engineers.

Many cases of dumping have undoubtedly occurred, though to establish the fact would be difficult. We have fair grounds to assume as an example that certain important three-phase machinery purchased by the Corporation of Manchester and Sunderland from German firms was sold at a considerable loss to the makers. In any case, these sales were made at prices very much below any possible English costs.

Firm No. **C 598.**

768 The Directors of this Company compute that at least 15,000 persons depend for their daily bread upon the weekly wages paid by them. In their opinion the livelihood of these people is in jeopardy through that unrestricted foreign competition which is now prevailing. Every shilling's worth of electrical machinery and apparatus imported into this country during the last few years could have been made in this country, with the exception of a few articles imported into this country with the distinct object of killing British industry. This machinery could not only be made in this country, but sold as cheaply as it is being sold now.

Driving Engines, &c.

Hick, Hargreaves & Co., Ltd., Soho Iron Works, Bolton; General Engineers.

Until recently we were not appreciably affected in our home trade by any foreign competition, but during the last few years a considerable number of engines for electric light and power purposes have been imported in connection with Municipal contracts, mostly from the United States, and to a less extent from Germany and Switzerland. Some of the engines have been supplied at very low prices, but more generally on the ground that the United States makers had more experience of the requirements of electrical work than home makers. This claim was skilfully pressed for a good deal more than it was worth.

Firm No. **C 2,178.**

The competition of foreign engines for driving dynamos in this country has been, with a few notable exceptions, comparatively rare, and I do not think this Company can be said to have lost many orders from this cause. 769

Firm No. **728.** Mechanical and Electrical Engineer.

Driving engines, similar to those we make are imported from the United States. We do not know if below our cost price, but sometimes we have offers which we accept in competition considerably below the price we obtain under normal conditions.

Motors, Dynamos, Alternators, &c.

Rhodes Electrical Manufacturing Co., Ltd., 70 and 71, Bishopsgate Street Within, London, E.C.; Manufacturers of Electric Machinery, Motors and Dynamos.

For electric motors we would say that Germany cuts prices to about our cost price in some instances, including a small percentage for establishment charges (say works cost plus cost of labour to cover fixed charges) and we can quote the following example. A well-known firm of consulting engineers sent out an inquiry to contractors for 46 direct-current motors including installing them, we were asked by two contractors to quote for the machines. They tendered on these prices including in their tenders our machines. The lowest price tendered by English firms was that tendered by one of these contractors namely £3,400, and a German firm secured the contract at £2,500. The nett cost of machines allowing correct percentage for establishment charges namely, plus 150 per cent. of labour and workshops' costs, plus low figure for erecting, allowing only 12 per cent. establishment charges and adding no profit in either case brings amount to £2,760.

Firm No. 1,317. Marine Engineers. 770

The machinery trades of Germany, and to a lesser extent America, have largely supplied the home market in dynamos and alternators, but during the last two years importation has declined and at present has almost ceased. In steam engines Germany and America compete in the home market but to a much smaller extent.

Firm No. 1,453. Engineers.

We experience competition in complete generating plant for electric light stations. As regards the steam portion of this, we have, owing to the position in Russia and Germany made arrangements with regard to the steam turbine which eliminate competition almost altogether; so that practically the only foreign competition felt is competition with a different type of engine. This is mainly true too of the electrical part of our manufactures, as the dynamos we make are of a special type (suitable only for driving by steam turbines) which tends to bar competition for a time. We also manufacture a special type of air compressor which is too newly developed for us to feel competition. The above remarks about our foreign rights also apply to this.

Germany and to a lesser extent America compete in our home market in dynamos and alternators, but during the last two years the importation has declined and at present has almost ceased. Germany and America also compete in steam engines but to a much smaller extent. A dynamo for a large power station in the vicinity of Newcastle was imported from Switzerland below our cost price. 771

Hugh J. Scott & Co., Ravenhill Avenue, Belfast; Manufacturers of Electric Dynamos and Motors

We meet with frequent cases of dynamos made in Germany and Belgium being sold delivered in the north of Ireland at about the net cost of manufacture to us.

We have heard of one case in which a local firm required a dynamo and wrote to three Continental firms asking for quotations. Only one firm gave a definite price, the other two wrote asking how much would the buyer give for the machine.

Newtons, Limited, Electrical Works, Taunton; Manufacturers of Dynamos, &c.

While we have every reason to believe that it is absolutely impossible for foreign manufacturers to produce and sell motors at a profit at the prices they are now getting in this country we are not in a position to give accurate figures. We may say that one size machine that costs us £43 to make is now being sold here by German firms for £35 10s., and we feel certain that the cost to them cannot be £7 10s. less than ours.

Electric motors and dynamos are now imported into this country and sold below the cost price of the
machines we were making up to a year or two ago. These machines were produced as cheaply and were as good
as any on the market, but prices dropped to such an extent that they could no longer be sold at a profit. We
have within the last two years taken up the manufacture of a new patented invention which enables us 772
to sell dynamo electric machinery at prices which compare favourably with the German dumped machines,
but for this we should probably have been obliged to close our works. While now able to meet foreign com-
petition there is nothing to prevent the patentee from disposing of his foreign patents and we feel sure
that as soon as German manufacturers take up this new machine they will sell it in this country below cost
price in order to keep their works in full swing unless an import duty sufficiently high to prevent "profitable
dumping" is imposed. Unfortunately for this country Germany does not impose a prohibitive tariff against
British knowledge or inventions.

Firm No. 1,589. Ironfounders.

During the last commercial depression in Germany, we suffered from an inrush of cheap electric motors and dynamos, but attribute this to the fact that the makers were compelled to realise on them.

W. C. Mountain, Scott & Mountain, Ltd., Close Works, Newcastle-on-Tyne; Electrical Engineers.

A large amount of competition exists at present in this country due to German and American electrical
machinery being delivered without duty. The principal articles which suffer from this competition are dynamos
and motors (continuous current and alternating), arc lamps, measuring instruments, arc lamp carbons, cables.
We are manufacturers only of dynamos and motors, but as we supply complete equipments of colliery plant,
and the other items mentioned are embodied in these equipments, we find it difficult to compete when using 773
English goods.

As manufacturers of pumps and motors and knowing the prices at which Germans and Americans are taking business in this country we can unhesitatingly state that in many cases work is taken below cost price if cost is to be taken as time and materials plus establishment charges.

Archd. McMillan & Son, Limited, Dumbarton: Shipbuilders.

Iron and steel material from Germany and United States, electric motors from Germany, and wood working machinery from Germany and United States make inroads on markets hitherto supplied by us. So far as we can judge, as buyers of the above materials, Germany and United States are extending their business considerably in this country for these goods. We as a rule have found the German and American article quoted at a much lower figure than the British made.

Davies, Kent & Stewart, Ltd., 17, Berners Street, Oxford Street, London, W.; Manufacturers of Electrical Accessories, &c. *Accessories*

We have no definite proof that flexible wire is sold below cost as there are no means of ascertaining this, but we understand that prices are much higher in the country of origin than here, and that the wire

774 sold here is surplus production. Factory legislation, higher rents, rates, taxes, wages, etc., must necessarily add to our working expenses.

Firm No. **1,368.** Manufacturers of Electrical Apparatus.

Many imported articles are placed on the British market below the normal cost of production in the country of origin. Representatives of foreign firms repeatedly make special offers to enable them to reduce stocks or maintain their works' output.

D.P. Battery Co., Ltd., 11, Victoria Street, London, S.W.; Manufacturers of Electrical Storage Batteries.

Electrical storage battery plates are the principal articles that we manufacture for the home trade in respect to which we experience foreign competition.

We have been in competition with batteries imported from Germany which were evidently surplus output dumped on the market as they could not be produced at the price they were offered.

The most important German competitor has now taken an English name so as to make believe that they are English manufacturers, al hough delivery is given in Germany. Another German company recently quoted for a battery to be delivered in Japan and their prices were so low that we could not compete with them.

775

W. McGeoch & Co., Ltd., 108, Argyle Street, Glasgow and Warwick Works, Birmingham; Iron Merchants and Wholesale Ironmongers.

Lampholders, tumbler switches and other small electrical accessories can be imported principally from Germany at lower prices than we can sell at, but on the other hand patterns are lighter generally speaking than we care to make our standards.

We do not consider as a general rule that lamp holders, tumbler switches and other small electrical accessories are sold in this country below normal cost of production in country of origin. We believe that the manufacturer has a profit as well as the distributing merchant or agent in this country.

General Electric Co., Limited, 71, Queen Victoria Street, London, E.C.

Generally foreign electrical goods are not cheap. Foreign manufacturers have now excellent commercial agents here—they get the best possible price which is often very high if there is no home competition. In some cases prices seem cheap but they always cover material and labour, and being sold in large quantities help towards general expenses. They assist in keeping the works going and cheapening the whole output, therefore can never be said to be below normal cost of production.

In electric light carbons (an important article because our coast defences, searchlights, &c., depend on
776 it) the case is different. There are only three large factories in Germany and Austria, all very wealthy. They have had the English market undisputed for ten years. When we opened a new carbon works at Witton these makers combined and are selling under cost to kill the English Works. They will succeed as we have lost £16,000 in the first year and will lose £6,000 this year. Nothing but a protective tariff can keep this important industry alive in England.

Except the few articles mentioned below, none of the electrical apparatus imported from abroad is imported below our cost price. We make this assertion on this experience —that our cost prices are as low as the cost prices of any foreign maker provided we are placed in a position to make in quantities as large and in output as continuous as our competitors abroad.

We could afford to sell under a protective tariff every electrical article at price below those ruling at present, and could at the same time afford to pay higher wages. We are willing to give proofs and explanation to the Commission. The exceptions referred to are mainly cheap electric bells and pushes, where woodwork forms a main part and Germans have some natural advantage, and electric light carbons. These are imported below the foreigners' own cost price with the deliberate aim of destroying thereby the only carbon factory now existing in England. For instance 13 mm. carbons were sold two years ago at 45 shillings per 1,000 feet. Cost price is about 35 shillings. Now they are sold at 24 shillings per 1,000 feet.

Cowans, Ltd., Springfield Lane, Salford, Manchester; Makers of Electrical Accessories.

777 From conversation with various business men in Berlin and elsewhere, I gather that goods have been supplied deliberately by German firms of the kind manufactured by this company (H. T. Switch Gear) at below their cost price. My knowledge of costs leads me to confirm the information received.

G. Christie, Ltd., 197, Broomloan Road, Govan, Glasgow; Wire Drawers, &c., Manufacturers of Dynamo Brushes.

The selling price in this country is lower than that prevailing in the country of production. From the narrow margin between the selling price here and the cost of the metal, we are satisfied that a profitable business could not be carried on were this basis prevailing over the total production of the factory.

Firm No. C 99.

My customers tell me that they cannot give me any orders for electric brass work now because the foreign goods can be bought so much cheaper and the people will buy them as they answer the same purpose.

We are giving up manufacturing electric pushes, finding after so many years English manufacture is not wanted, at any rate not at a living price, we are retiring from the business as we find it impossible to compete with foreign competition.

THE LONDON ELECTRICAL FITTINGS CO., LTD., ROBERTS WORKS, HAMPSTEAD ROAD, LONDON, N.W.; Electric Lighting Fitters. 778

We do not directly feel foreign competition in the manufacturing of fittings but we are seriously hampered from this cause in the factoring of accessories, especially lamp holders, switches, ceiling roses and flexible cords.

FIRM No. **C 1,593.**

No trade in this country has been hit harder by the system known in this country as free trade than the trade in electric accessories. In one branch of the electrical trade alone, the cabinet making and woodworking and polishing, there is sufficient work in this country to employ 10,000 hands, which is entirely done by Germany.

Telegraphs and Telephones

FIRM No. **1,479.** Electrical and Telegraph Engineers, &c.

We can only say that when we lose orders our representatives report the prices which have been paid for the manufactures and on looking into our costs we can only conclude that the imported articles are placed upon the British market at or below the normal cost of production in the country of origin as in many instances there cannot possibly be any profit.

We find in experience that whenever necessary the agents of continental manufacturers will quote below our cost price rather than allow orders to go past them. 779

FIRM No. **1,299.** Manufacturers of Electric Cables.

Last month a large order for cables for an English railway company was quoted for by a German firm below English cost prices. The railway company offered us an option at the German price and sooner than allow the work to go out of the country we have taken the order. This is not an isolated instance. Telephone instruments are imported cheaper from Belgium, Germany and Sweden than they can be made in this country.

Marine Engineering. *Shafting, &c.*

FIRM No. **C 1,685.**

The selling price of certain German forgings is 20 to 35 per cent. below our own, and the wages of leading men are about 40 to 70 per cent. less than we pay, but we cannot say what their costs are. One sidelight that leads us to think that the German costs are not so much below ours is that in the month of January when the German firms were reducing the prices of forgings at home to a minimum figure in order to force the outstanding firms to join the kartell the lowest price of very plain forgings d/d Dortmund was 8s. 6d. per cwt. This is about 10 per cent. below our home cost but not much if anything below the cost of the best equipped forges in this country. When we look at rough turned marine shafting however which is the largest branch of the German forging exports we find that they are selling it here at 10s. to 11s. per cwt. while we cannot make it below 15s. and do not think that any British firm can make it below 13s. 6d. per cwt. over head. 780

FIRM No. **1,564.** Marine Engineers.

Shafting for marine engines is imported from Germany, owing to less cost of the German material. Combination of manufacturers in the United Kingdom considers all inquiries for shafting for marine engines and fixes the prices to be quoted. Krupp of Germany supply shafting at much less cost, which passes all tests satisfactorily. For merchant steamers of first-class British lines—Peninsular and Oriental, Union, Castle, and Allan—shafting of Krupp's make is freely used with satisfactory results.

FIRM No. **1,284.** Manufacturers of Marine and Land Engine Forgings, &c.

The prices at which the Germans and Danes are sending forgings into this country cannot allow them any profit on these manufactures, in fact, we consider they are being delivered here very much below their cost price.

WALLSEND SLIPWAY AND ENGINEERING CO., LTD., WALLSEND-ON-TYNE.

Steel crank and screw shafting and large steel forgings were made in this country up to three or four years ago, but are now purchased in Germany owing to the foreign prices being so much less.

781

FIRM No. **221.** Shipbuilders and Marine Engineers.

We are able to buy forgings and steel castings from Germany at considerably less price than they can be produced here; but we have no means of knowing whether the prices are below the cost of production in Germany.

FIRM No. **549.** Manufacturers of Forgings, &c., for Shipbuilding, &c.

Five years ago we supplied £1,000 worth of steel forgings to a Scotch shipbuilding firm for dredger work. We were paid then £19 per ton for the forgings which had to stand the Admiralty test. Early this year a similar order was offered to us, the work being exactly the same as before, and we quoted £15 10s. per ton, which was the market price of the day. We did not get any portion of the order, but five forgings were bought in Scotland at £14 5s. per ton which was practically the Sheffield price minus the carriage and the remainder of the order (about 90 per cent. of it) went to Germany at £10 10s. per ton delivered free Glasgow. The gentleman who bought the forgings and who knows Kiel well, where the forgings are made, said they were not made for the money, but they were " dumped down " at the price as there is an agreement amongst the steel forges in North Germany to divide amongst the various works the losses that are made by sending forgings to Great Britain under cost price.

Foreign Competition at Home

Marine Engineering.
Shafting, &c.
—continued

782 Firm No. **958.** Manufacturer of Iron and Steel Forgings for Marine Engine Forging Builders.

Steel forgings for built crankshafts and propeller shafting are supplied from Germany to my customers on the north-east coast district at about £6 per ton less price than I can make the black forgings at, and in addition the German forgings are rough machined all over.

Firm No. **838.** Manufacturers of Forgings.

Land and marine engine forgings, also stern and rudder frames from Germany, are being sold in this country at from 20 per cent. to 40 per cent. under our cost prices.

Firm No. **C 1,778.**

The only goods we purchase from the Continent are steel castings, ingot steel tunnel shafting, and crank shaft parts, all of which we find of excellent quality, and which are supplied to us at much lower prices than we can either make them ourselves or purchase them from English makers. We are firmly convinced the prices charged us are much below the actual cost of manufacture in the countries from which the goods are sent. As forge masters we find the foreign competition very severe.

So far as our principal trade, *viz.*, marine engineering, is concerned, we have not found that Germany,
the United States, or other foreign countries have made any inroad on our markets, except that, as may be
expected, steel shipbuilding is on the increase in these countries. A considerable portion of the machinery
783 we manufacture is for vessels built, not only in this country but on the Continent, to the order of foreigners.

J. Hastie & Co., Ltd., Kilblain Engine Works, Princes Street, Greenock, N.B.; Steam and Hand Steering Gear Makers.

Heavy steel castings formerly obtained in the United Kingdom are now imported from Germany. We were induced to change principally because we were able to get first-rate castings at a comparatively low figure. The German price shows a tendency to rise at present and the British price for the better makes of castings is now practically the same as the German. It is therefore likely that we shall begin to buy in Britain again shortly.

Firm No. **1,317.** Marine Engineers.

Sheet iron for armature plates is partly got from Germany owing to difficulty in obtaining large enough sizes from English manufacturers and until lately owing to the higher price of English plates. The quality of English plates was not so good, but is now up to the German plates.

Engines

Simpson, Strickland & Co., Ltd., Dartmouth, S. Devon; Shipbuilders.

Engines for steam launches are imported below our cost, and we are now experiencing some com-
784 petition from oil motors, principally of American makes. So far the competition is not severe on account
of oil motors not being so reliable as steam engines.

A. Rutherford & Co., Neptune Works, Bridge Street, Birkenhead; Shipbuilders, Engineers, and Boilermakers.

Small marine engines and pumps can be bought often in Belgium and Germany for what the material costs us here before manufacture. This cannot always be done but sometimes.

Cooper and Greig, Britannia Engine and Boiler Works, East Dock Street, Dundee; Manufacturers of Steam Engines and Boilers.

Our sales with the exception of some of the marine engines and boilers are almost entirely for home
markets and the effects of foreign tariffs are not directly apparent. In the case of the marine engines and
boilers where these are for foreign owners we only deal with the home shipbuilders who supply the hull. We
find however the effects of dumping inasmuch as just now we buy heavy marine shafting and other forgings
made in Denmark, Belgium and Germany of steel d/d into our works, freight and carriage paid, including
Lloyds and Board of Trade fees for inspection and testing, machined all over to within 1/16th inch of the finished
dimensions for a lower price than it costs the home forge to produce a rough iron forging not including any
freight, carriage or machining. This of course is damaging the forges of our own country and must be
785 taking away the turnover and money for labour that would support the home institutions.

Firm No. **357.** Engineers.

We do not experience foreign competition in marine engine building on the Tyne. There must however be a considerable amount of foreign competition in shipbuilding as we ourselves during the last three years have had sent over from Holland 11 steamers to fit our engines and boilers into. Of these seven steamers were for English purchasers.

Firm No. **1,317.** Marine Engineers.

No articles we manufacture have yet been imported into this country from abroad, and for some years we are protected by private agreement. In view of the hostile tariffs of foreign countries the popular antipathy to the importation of English manufactured engines for Admiralty ships, especially in France and Germany, and the adverse character of the patent laws (of late years much ameliorated), our policy has been either to sell our patent rights abroad or to enter into partnership arrangements or to license. The sum total of these arrangements has been the placing of some of our capital abroad which, if tariffs had not been against us and patent laws, &c., unfair, would have been invested at home to increase our export trade.

FIRM NO. **4098.**, Boat Builder, &c. 786

Some time ago we quoted for a large order for launch hulls to be supplied to a company making motor engines. In reply we were informed that our quotation was "almost twice what we can do elsewhere." Subsequently we discovered that "elsewhere" had reference to the United States, and that a firm there was building these boats, paying the freight and selling them here at about 15s. per ft. less than our lowest possible price. In view of the high rates of wages ruling in the States we regard this as a glaring example of dumping under cost price of surplus production.

Hulls, Boats, Launches, &c.

Foreign firms, secure in their own market, are able to sell in our free market at prices which are little more than nominal while we, by allowing this freedom to others, deny ourselves the freedom of selling at even a fairly remunerative price.

THE SEAMLESS STEEL BOAT CO., LTD., CALDER VALE ROAD, WAKEFIELD; Boat Builders.

Steel sheets now purchased abroad were formerly made in the United Kingdom but foreign mills will roll longer and wider sheets than the English mills, and the lower price is a consideration.

The competition is small in seamless steel lifeboats, and is from Germany whence boats are occasionally sent to supply ships built in this country. Originally our trade with Germany was large, but the German Government intimated to shipowners there that subsidies paid to them were not intended to be used for importing boats from other countries, consequently the greater number of owners there now buy a steel boat made of small sheets riveted together as made in that country. 787

JAMES RICKARD & CO., BRENTFORD, LONDON, W.; Cycle Manufacturers and Engineers.

To our knowledge British capitalists prefer to invest in business abroad owing to the better security they get, as things are at present here at home. Again, nearly every motor launch or motor car is at present fitted with a foreign engine. Cars, launches and every description of engineering work come into the United Kingdom free; under these circumstances, as matters are at present if we worked 16 hours a day we could not hold our own. American cheap and nasty petrol launches are being sold to-day in England at £45. It is true they are dear at any price but they catch the public. A similar sized launch in England properly built would cost £100 and foster the industry, the others disgust the purchasers and ruin the trade.

FIRM NO. **3,879.** Ship and Yacht Builders.

Launch hulls are imported from the United States at or about cost price, but it must be stated that this is only possible owing to their being manufactured in quantity to a few distinct sizes and patterns, and that the workmanship is not equal to that here. These hulls could be constructed in quantity this side at a lower price, but would not find sufficient market.

FIRM NO. **1,564.** Marine Engineers.

We are aware of an instance of a Glasgow shipowner who recently ordered a tramp steamer from shipbuilders in Rotterdam at about £12,000 less price than British shipbuilders. 788

Steamers, &c.

WILLOUGHBY BROS., LTD., RENDLE STREET, PLYMOUTH; General Engineers, Boilermakers and Iron Shipbuilders.

Tugs and other steamers, &c., we understand receive a bounty when constructed in France and we also understand that in Belgium and other countries shipping is cheaply built, but whether there is any assistance from the Continental governments we cannot state.

RUSSELL & CO., PORT GLASGOW; Shipbuilders.

We feel sure that no completed ships are imported into this country below cost of production here; but parts of vessels are imported, such as forgings, steel castings, manufactured steel and iron, and sometimes minor articles and fittings.

FIRM NO. **690.** Steamship Builders.

In July, 1902, we contracted for a vessel at a Rotterdam firm's price. We found after building this vessel that we lost on the building of same the sum of £500. In August, 1903, we contracted for a tug for the London river at £200 above a Dutch shipbuilder's price and after building the tug cheaper than any other British builder could build her, we lost £93 on the transaction. We were of opinion before we contracted for the above that it was the fault of the shipbuilders in this country employing too much official labour in their shipyards and that this prevented us from competing with the Dutch shipbuilders, but as the official labour of our shipyard only amounts to about £5 10s. per week and the consumption of coal does not exceed £30 per month, we are now convinced that as far as the British shipbuilder is concerned we are at present beaten by the Dutch and German shipbuilders. 789

THE ARDROSSAN DRY DOCK AND SHIPBUILDING CO., LTD., ARDROSSAN, N.B.; Shipbuilders, Repairers and Engineers.

In the course of tendering it has on several occasions come to our knowledge that vessels are being built abroad and supplied to this country below the lowest tenders furnished on this side. At present a firm of Clyde shipowners have placed an order on the Continent for a large screw steamer on the score of price.

FIRM NO. **771.** Shipbuilders and Engineers.

We are frequently informed by local owners that they can procure ships in Sweden, Germany and Holland at prices far below our lowest quotations.

Foreign Competition at Home

Marine Engineering.
Steamers, &c.—continued

790 FIRM No. **1,118.** Steel and Iron Shipbuilders and Repairers.

There is a growing tendency to have vessels built in Germany, Holland and Belgium. One ship-owning firm in Glasgow has quite recently got a cargo steamer built in Holland, and a south of England firm had one built in Antwerp. Doubtless there are many other instances of which we have not heard.

In the case of a steamer built in Holland, we believe the price was from £2,000 to £3,000 less than the vessel could have been obtained for here—or about 12 per cent.

A. RUTHERFORD & Co., NEPTUNE WORKS, BRIDGE STREET, BIRKENHEAD; Shipbuilders, Engineers and Boilermakers.

We have no certain means of knowing to what extent the free imports affect our business, but the lowest estimate we can give, based on the number of tenders we give and those we can trace as having gone to foreign countries, will not be less than 150 per cent. of our output.

W. D. ANGIER, LEADENHALL HOUSE, 101, LEADENHALL STREET, LONDON, E.C.; Agent for Engineering Firms, &c.

In the case of shipbuilding, German prices are higher than British in most cases.

NAPIER & MILLER, LTD., YOKER, NR. GLASGOW; Shipbuilders.

791 We do not experience any foreign competition except in the case of sailing ships where the French bounty system has prevented shipowners from ordering sailing ships.

Mechanical Engineering.
Engines and Boilers, &c.

ROBEY & Co., LTD., GLOBE WORKS, LINCOLNSHIRE; Engineers.

Horizontal fixed steam engines are imported from Germany. As a striking illustration that steam engines are imported into this country by Germany below our cost price we may state that on the 19th January, 1903, at the request of a well-known Yorkshire Colliery Company we quoted them for a large horizontal fixed steam engine. Other English manufacturers were also invited to send tenders. As some indication that our quotation was at a reasonable market price we may mention that the tender of our neighbours Messrs. Marshall, Sons & Co., Ltd., of Gainsborough was within 2 per cent. of the same price. A German manufacturer tendered at a price 34 per cent. below the above-named quotations, which were the lowest English tenders, whereupon their offer was accepted by the Colliery Company. The sum quoted was below our cost price.

YATES AND THOM, CANAL ENGINEERING AND BOILER WORKS, BLACKBURN.

We have quoted for engines required in Great Britain and in depressed trade the prices given have
been actual cost of manufacture, notwithstanding this the contracts have been let to foreign firms at less
792 prices. Taking into account that wages and materials are higher in America and they were also handicapped
in the carriage and freight to England, the prices at which they secured the contracts must have been
considerably below cost of production in their own country.

FIRM No. **1,462.**

Our special machinery manufactured during the past 60 years has been steam engines, boilers, special machinery for the slate industry, and general engineering work, in all, or most of which, foreign competition has had a prominent share, in the writer's opinion, in bringing these old-established works to a standstill. "Closed 1903."

E. NEWELL & Co., LTD., MISTERTON, GAINSBOROUGH; Engineers, Millwrights and Ironfounders.

We have been obliged to carry on our business right out in the country; we have colonised, built cottages, &c., in order that we might produce cheaply. Even now, with an up-to-date works, we are regularly cut out, especially by German makers who will accept work at under cost sooner than lose it.

FIRM No. **689.** Engineer.

The machinery of which I am the patentee can readily be obtained of Belgian manufacture, each
machine for £255 delivered in this country. The lowest estimate obtained from any manufacturer in this
793 country for this machine to the same drawings and specification is £295.

FIRM No. **881.** Engineers.

We are frequently asked to supply drawings and specifications for machinery at some expense and it often happens that we find indirectly that our drawings and specifications are cut up and sent piecemeal to Belgian and German firms for tenders. They have no cost of drawings or specification to bear and the lower rates of wages paid on the Continent and frequently inferior metal supplied enables lower prices to be given.

FIRM No. **864.** Engineers.

We cannot say that we have suffered appreciably by foreign competition in our home trade, that is to say in our staple products, *viz.*: engines, boilers and heavy agricultural machinery. Continental manufacturers do not as yet push these goods to any serious extent in Great Britain, consequently we have not lost the home market. There is however evidence that German manufacturers are making efforts to obtain a footing in the markets of the United Kingdom, and we believe under our present fiscal system this might at no distant date become serious. American and German manufacturers are also making great efforts to capture the markets in our Colonies and Dependencies.

794 LUCAS & DAVIES, 9, WICKHAM STREET, TYERS STREET, LAMBETH, LONDON, S.E.; Engineers and Mechanical Model Makers.

In model engines of all types, small steam engines intended to do work, motors, &c., foreign competition in many cases has cut down the prices 50 per cent., in fact thoroughly crippled our trade.

J. FRASER & SON, LTD., MILLWALL BOILER WORKS, LONDON, E.; Manufacturers of Steam Boilers, Storage Tanks, Steel Pipes.

Foreign competition to only a small extent affects the articles we supply. On the other hand we supply manufacturers with boilers, &c., who themselves are injured by foreign competition, consequently there is not the works development going on which there should be, and therefore our trade is injured.

WM. WILSON & CO., LILYBANK BOILER WORKS, EGLINTON STREET, GLASGOW; Makers of Steam Boilers.

No articles similar to those made by us are imported into this country below our cost price.

W. R. TAYLOR, MEDWAY WORKS, ROCHESTER, KENT; Engineer, Ironfounder, and Boilermaker.

Various clients say they have placed orders abroad for machinery that I have quoted them for at a price at which I believe they cannot be manufactured. It is quite time something was done to prevent the foreigner underselling us in our own markets. Only this very week I have inquiry for a large cement plant and have been informed I am in competition with the Germans who, I have no doubt, would make a whole set of new patterns and put the machinery up at a loss to get a footing here for this class of work, the first in its way. 795

FIRM No. **C 1,497.**

We are just now making arrangements to supply a different class of boiler so as to meet the foreign competition; our foreign competitors are displacing wrought iron welded boilers by cast iron boilers; and we are equipping ourselves to meet this new competition.

STRONG & COLLINGS, BERMONDSEY STREET, LONDON, S.E.; Boilermakers, &c.

The boilermaking and repairing trade is very quiet in London, and has been dwindling for years, one great reason being the decay of many industries from foreign competition. We remember when our trade was very brisk repairing boilers in flour mills, grinding mills, glass mills, silk mills, trimming mills and sugar factories which are now closed owing to foreign competition, thus causing loss of work and repairs. Strikes have also taken trade from the Thames. We use much foreign bar and sheet iron instead of British, as it is cheaper.

T. BALMFORTH & CO., LUTON, BEDS.; Steam Boilermakers.

796 A considerable number of small riveted steel steam boilers for dairy and other purposes is imported from America and also a vast number of boilers for heating purposes (hot water and low pressure steam) which although made of cast iron as against our wrought iron and steel are used for the same purposes and compete severely with us.

RANSOME & MARSHALL, 67, TITHEBARN STREET, LIVERPOOL; Engineers and Exporters.

United States and Germany simply use Great Britain as a dumping ground. They can make large quantities and realise their profits in their own countries, and when they have a surplus they send this over here at cost price thus depriving British workmen of their wages. We can buy American surplus stock at less than cost and German at cost.

FIRM No. **569**. Boilermakers.

We have quoted for several tanks recently and have been cut out by a German firm who got the orders and erected them in this country at a less cost than we could manufacture same.

FIRM No. **C 1,637.**

We feel convinced that manufacturers in this country, together with their employés, are being heavily hit through the importation of manufactured articles, although at the same time many people are only too glad to get finished articles from abroad to avoid the tyranny of Trades Unionism, from which we and the whole country suffer much. 797

FIRM No. **C 316.**

Five years ago we brought under the notice of one of the eminent firms we represent the endeavours made by an American firm to sell Steam Economisers of much simpler construction than the appliances we had been selling for years past for the firm in question. We were snubbed for our pains, but the American firm now secure four orders for their simpler, cheaper appliances against one secured by us for the old standard machine. We have this morning received an inquiry for such a machine and we find that our price is just five times the price quoted for the simpler contrivance by the American firm, and although in our experience the American appliances do not last so long as the British machines, improvements are made so rapidly now-a-days that the Americans at all events prefer the cheap machine, and work it at full pitch until it is worn out, by which time some improved apparatus may be available, instead of the old-fashioned English method of buying a machine which will last unto the third generation. It is in this department that we have most severely felt the effect of American enterprise and push, we could hardly call it underselling in the ordinary sense.

798 **Foreign Competition at Home**

Mechanical Engineering. *Engines and Boilers, &c.—continued*

Firm No. **1,096**. Manufacturers of Wrought Iron Welded Boilers.

American boilers are sold in the British market at prices below ours and the travellers of one American firm make no secret that their firm has actually lost £35,000 in so placing them on the British market.

Marriott & Graham, Govan, Glasgow; Boilermakers.

We have no exact information regarding this, but judging from the fact that the boilers are placed on this market at a lower price than we can produce them, we should presume that they are the surplus production of the United States manufacturers.

Firm No. **1,011**. Industrial and Agricultural Engineers, &c.

At present we are not suffering from foreign competition in the home trade although we have reason to fear it in the near future, as we have heard of American traction engines being introduced into Ireland.

Locomotives

The Avonside Engine Co., Bristol; Locomotive Builders.

Foreign competition has not yet affected us in home markets. The few times locomotives have been imported into Great Britain have been when all the home builders were too busy to accept contracts for reasonable delivery. When the Midland, Great Central, Great Northern, Port Talbot and Rhondda and Swansea railways bought American locomotives we were unable to tender as we had over two years' contracts
799 to execute. It is however highly probable that German makers could now export to England electric locomotives and deliver at a price which we could not compete with (provided there was a demand) owing to the advantages the German Government have given them in experimenting and bolstering up their home market.

The Vulcan Foundry, Ltd., Locomotive Works, Newton-le-Willows, Lancashire; Engineers.

Locomotives were imported by the Midland, Great Central, Great Northern and other railways during recent years below our cost price from America. From the prices at which we believe certain contracts were booked we are positive the work must have been taken at or below the normal cost of production in America and immensely below what they would charge in their own country.

Firm No. **1,050**. Locomotive Engineers.

American locomotives have been bought cheaper than those built in this country, but have proved not so good as those manufactured in the United Kingdom.

North British Locomotive Co., Ltd., 17, Victoria Street, Westminster; Locomotive Engineers.

Except in exceptional circumstances locomotive engines are not imported into this country.

Firm No. **C 2,066**.

Our industry—that of locomotive engine building—is not appreciably affected by foreign competition.

800 *Pipes, Tubes, &c.*

J. Oakes & Co., Alfreton Iron Works, Derbyshire; Manufacturers of Cast Iron Pipes, &c.

Cast iron gas and water pipes from France and Belgium are placed on the London market at a less price than we can possibly deliver, partly owing to their water carriage being lower than our railway rates.

Firm No. **917.** Manufacturers of Weldless Steel Tubes.

Partly finished and finished tubes, chiefly of Swedish manufacture, are sold to our customers below the price at which we can manufacture, the chief reason for this being that the Swedish steel manufacturers who supply us with raw material find that they can sell more steel by selling it in the form of tubes at a very low price to other manufacturers who are unable to deal with the raw material. In our Colonial trade the German competition is very apparent.

D. F. Thomson & Co., 4, Duke Street, Aldgate, London, E.C.; Wrought Iron Tubes and Cast Iron Pipe Merchants.

Large consignments of cast iron pipes from France have been sent to this country within the last 18 months. They are sold here sometimes more than £1 per ton under English makes. The average price of cast iron pipes might be taken at £5 per ton. Municipal contracts advertised for public tender have been secured by French agents. Stocks of wrought iron tubes from Germany and United States are main-
801 tained in London and the trade supplied under home makers' prices, and large orders are now executed direct from the works, in Germany especially, at prices which leave no profit to the British manufacturer.

Firm No. **603.** Manufacturers of Tubes, &c.

The prices at which foreigners have sold various articles in our line are slightly below our cost prices or at cost prices. As a rule foreigners do not sell below their cost prices, the idea is that exported goods increase the output and thus reduce cost prices generally.

Firm No. **1,005.** Manufacturers of Steel Tubes and Fittings.

Few, if any, imported articles are placed upon the British market below the normal cost of production in the country of origin. Prices and deliveries are erratic and dependent on the state of the foreign demand.

Cranes, &c.

J. M. Henderson & Co., King Street Engineering Works, Aberdeen; Engineers.

Unabsorbed or surplus articles manufactured in foreign countries are sold in this country at practically any price that can be got. The rate of increase of production of manufactured articles is so much greater than the requirements of those countries demand that the surplus is apparently an always increasing quantity.

802 The Hydraulic Engineering Co., Ltd., Charles Street, Chester; Engineers and Founders.

At one time the company suffered from American competition in lifts, not due to low prices, but mainly to the Americans being better salesmen (more commercial and less technical) and to the apparent belief on the part of purchasers that anything American must be better than British productions. The prices were above British prices. At present the American competition is due to American control and employment of American capital here and is not due to competition of prices. Americans have of late years found it desirable to associate themselves with British firms.

Joseph Richmond & Co., Ltd., 30, Kirby Street, Hatton Garden, London, E.C.; Engineers.

In our particular line we have not found a great deal of foreign competition, except from America in the lift trade. The question of freights we think influences the Colonial to an extent.

We do not think the goods are sold below the normal cost of production. The prices however at which they are sold render it impossible in many cases to compete and at the same time secure a reasonable profit. In connection with lifts and cranes, one of our chief competitors in London has amalgamated with an American firm, practically forming a trust. It seems to be their object to drive out all opposition and they are often prepared to take prices which cannot possibly equal the cost of production and labour in fixing.

The Bolton General Engineering Co., Little Hulton, Bolton.

803 Conveying plant is imported from America slightly below our cost price; tools from Germany and America about 20 per cent. lower and machine tools from America about 40 per cent. lower.

Firm No. **347.** Elevator Manufacturers, Builders, &c.

We suffer from competition from Germany below our cost price of elevating and conveying machinery; Zimmer conveyor and conveyors for colliery plant. Aerial ropeways entailing an enormous amount of steel rope are made in Germany and delivered and erected over here cheaper than our cost price. Steel structural work from Belgium and Germany is also delivered over here cheaper than our cost price.

Firm No. **1,078.** Engineers, Smiths, Boilermakers, &c.

We have recently quoted all large tinplate works in South Wales for our transport hoists to deal with the tin bars. Owing to the continuous dumping of steel bars into South Wales our orders are deferred indefinitely, that portion of the works not working. Our average order would work out at £800 each.

H. J. Coles, London Crane Works, Derby; Crane Maker.

Steam cranes are peculiarly British, and I do not think there is much real competition in electric cranes.

Firm No. **238.** Makers of Heavy Machine Tools.

Shafting, Forgings, &c.

804 Shafts and forgings used in our manufactures, are imported into this country from Germany, at a rate lower by 50 per cent. than they can be bought for from British manufacturers. Lately we tendered for a very large plate-bending machine for France (120 tons), it was taken by a German firm, who paid freight and duties at a price very little over the cost price of the raw material in this country. It naturally would have been the same had the machine been made for Great Britain.

Joseph Richmond & Co., Ltd., Watermoor Foundry, Cirencester; Engineers.

Large numbers of castings for the London tramways have been sent over here from Belgium at 10s. per cwt. We have seen these ourselves, and should have been pleased to have made them at 8s. or 9s. per cwt., but we had no chance of tendering for same, as they were apparently bought or imported by the contractor. This complaint applies to other places as well, where castings have been imported, while we have been obliged to run on short time.

J. Butler & Co., Victoria Iron Works, Halifax; Engineers and Manufacturers of Machine Tools.

We buy steel forgings and steel castings from Germany at prices which are 30 per cent. to 40 per cent. below English prices. These are doubtless supplied at considerably below cost.

Firm No. **1,489.** Engineer.

805 At the present time whilst the importation of foreign rivet bars has been a distinct advantage to us, the foreign supply of forgings has caused us serious loss.

J. Mackrell & Co., Union Foundry, Elland; Engineers and Iron Founders.

We only suffer from foreign competition indirectly, that is our customers, being local, having bad trade we suffer accordingly.

Ward and Beazley, Vulcan Works, Mansfield; Engineers, Brass and Aluminium Founders.

We suffer indirectly from the dumping of rolled iron bars, sheets, rails, &c., &c. Our trade in heavy brass castings is chiefly in Sheffield with the rolling mills, and as Sheffield is one of the great sufferers from foreign competition we consequently suffer with them.

We find that we are supplying fewer castings in brass, gun metal, and copper to our home customers, who cannot compete with foreign competition.

Firm No. **1,090.** Millwrights.

A few years ago, say in 1901 or thereabouts, shafting was sent here from the United States at les than our cost price, but at present we are enabled to compete although Germany sends shafting here so that even now we are unable in many cases to get a reasonable margin of profit.

Foreign Competition at Home

Mechanical Engineering.
Shafting, Forgings, &c.—continued

806 Firm No. **1,333.** Manufacturing Mechanical Engineers.

We have bought in Germany heavy steel shaftings, finished, and delivered at prices about 30 per cent. less than German engineers have to pay for the same things. This enables us to compete successfully with such engineers for orders in foreign countries where we are on equal terms with them as regards import duties. We believe that the prices we can buy such articles at is considerably below cost of production.

Firm No. **1,318.** Engineers and Ironfounders.

We make castings for Glasgow and district tool makers, and they being undersold by foreigners have not the orders to place in the same quantities as formerly.

Darlington Forge Co., Ltd., Darlington; Manufacturers of Machined Iron and Steel Castings, &c.

Machined castings and forgings are being sent in below the normal cost of production in the country of origin. The reason for this is the fact that firms importing this material chiefly are not working at a profit and in some cases at a very considerable loss. The Managing Director of one important firm in Germany admitted that although they were supplying this work it was done at a loss.

John Jackson & Co., Balmoral Iron Yard, Scotstoun, near Glasgow; Dealer in Secondhand Machinery, &c.

807 It is quite impossible to produce anywhere steel shafting at the price the German material is being placed on this market and the only way they can recoup their loss in this is because of the high prices they are safe in obtaining in their own country because of protection.

Firm No. **273.** Engineers.

The time required for delivery of goods is a very important factor in obtaining orders and as our trade is chiefly in heavy goods and principally with inland works there is essentially a big delay in delivery of foreign goods. Many of the works are however coming to the coast and shipping ports and in such cases foreign competition is likely to affect us in some degree, though we do not think it will affect our trade very materially.

Rolling Stock

Harrison & Camm, Ltd., Rotherham; Manufacturers of Railway Rolling Stock, &c.

We have not hitherto experienced much foreign competition in railway wagons, although attempts have been made within the last year or two by the United States to deliver wagons in this country, and in fact a large number of wagons have been sent; but personally we have not had much experience of this competition. As regards the smaller wagons which are used in mining, very severe foreign competition has been experienced, principally from Belgian and German makers who have flooded the market of this country, as well as the South African and other Colonial markets, with a very cheap and inferior class of mining wagon which has to a large extent driven British manufactured wagons off the market. As for the wheels and axles
808 the large trade that we did years ago with France, Germany, Austria, Russia, and Norway and Sweden, has entirely ceased to exist owing to foreign competition.

We have no definite information with regard to the prices at which railway wagons have been placed upon the British market, although in numerous instances railway wheels and axles have been delivered to this country as well as to the Colonies by German makers at considerably below the cost of production in this country; and although we are not makers of tyres and axles these are the two principal component parts of railway wheels and axles, and at the present time we are being quoted for these materials manufactured in Belgium and Germany at several pounds per ton less than we can buy at in our own town and the neighbouring city of Sheffield. The same remarks apply to cast steel centres which are also used in the manufacture of railway wheels and axles.

Firm No. **C 4,466.**

The chief object of the buyers of mining trucks now seems to be to get the lowest priced article possible and they seem to be able to purchase at figures with which we are quite unable to compete.

W. G. Bagnall, Castle Engine Works, Stafford; Engineer and Locomotive, &c., Maker.

Tipping and light wagons are imported from Germany at exceedingly low prices but they are in most cases rather lighter than our make. At one time we were entirely cut out by these cheap wagons,
809 but with special designs new machinery and newly laid out shop we are holding our own at home, and in many places abroad. We ship considerably more than we make for this country. We must confess that to enable us to compete we buy most of this class of material from abroad.

Our own opinion is that tipping and light wagons do pay the manufacturers who import here. Their representatives take a great deal more trouble to obtain orders, however small, than the home manufacturers do, and the foreign works oblige the manufacturers by rolling odd and thin sections of steel which our own producers will not look at. In fact they are more enterprising and more hardworking than the home manufacturers.

Firm No. **C 2,199.**

The prices at which some wheels sent from the United States have been offered in this country were never clearly revealed to us, but we were justified in believing that they were to be purchased at the highest price offered for them. This "dumping" however we must say, in our particular industry, has never been serious.

Railway Plant

Saxby & Farmer, Ltd., Kilburn, N.W.; Manufacturers of Railway Signals and Safety Appliances.

We do not at present experience serious foreign competition in the home trade our products being hitherto protected by patents and still requiring special knowledge and experience, but there are indications of approaching competition with American appliances now being used on the North Eastern Railway. As patents expire competition will follow. 810

Firm No. **C 416**.

We are buying from a Belgian firm, carriage axle boxes at 18 shillings each, delivered here, for which a Sheffield firm quote £3 15s. each. This looks like "dumping."

The United Manufacturing Co., Ltd., Bute Docks, Cardiff; Oil Merchants, Importers and Engineers.

The proportion of foreign to British-made goods is increasing in iron and steel, railway plant and machinery, because the majority of English firms will not put themselves out in the slightest degree to secure business, and buyers have to take what the manufacturers offer, whereas Continental firms do all in their power to meet the wishes of prospective buyers.

Firm No. **C 128**.

A recent British order placed in the United States for manganese points and crossings, was sufficiently large to have kept British makers fully employed for six months. The American tender was 25 per cent. below the British tenders. American home prices, owing to tariff, being 25 per cent. higher than ours, this order will enable this contractor to work full time at a net profit on his total output, while our makers drag along on quarter-time, or shut down. 811

Megaw & Norton, 36, Lime Street, London, E.C.; General Merchants, Iron and Steel Manufacturers.

The proportion of foreign made goods to British made goods is increasing very much. Twenty-five years ago we bought no goods abroad; now at least one-half of our purchases is made in foreign countries. This particularly relates to manufactures of iron and steel, and railway material. We should say that Germany and Belgium are the cheapest countries at the present time for purchasing manufactures of steel and iron. This no doubt arises from the Kartell system, by which they are able to maintain a high price for goods sold in their own country, leaving them free to dispose of their surplus production abroad at very much lower prices. At present we think Belgium is the cheapest market, but Germany is a good second; the United States being only occasionally a successful competitor though in our experience as regards quality and finish they are first; and they are also most businesslike in carrying out all the details of their contracts. This answer would be incomplete if we did not call your attention to the much cheaper wages prevailing in Belgium and Germany, compared with what our workmen get.

R. White & Sons, Widnes, Lancashire; Railway Engineers, Merchants and Contractors.

Our trade is undoubtedly subject to adverse competition from foreign countries, but we are unable to state the precise reasons. Our opinion is that this competition refers principally to "dumped" material, that is surplus production which is placed upon the English market at, or even below, cost price in order to keep up the output at makers' works, and so reduce the standing charges there. 812

Our travellers are constantly finding lower foreign prices brought up against us. Light steel rails, the market price for which is about £5 10s. in this country, can be bought at under £5 per ton f.o.b. Antwerp, and through rates from f.o.b. Antwerp to inland towns in this country are in my case less than the railway rates only from our works on the coast to the same inland towns.

The same thing applies to steel tramway rails and to steel girders. These latter can be bought f.o.b. Antwerp at over 20s. per ton less than the English makers charge at their works—this price being at present for ordinary specification (for girders) £4 2s. 6d. per ton f.o.b. Antwerp—which leaves under £4 per ton at the makers' works, which is undoubtedly less than the cost of production in this country.

Firm No. **1,503.** Manufacturers of Railway Material.

Articles are probably imported here below the cost of production in the country of origin as we believe that in nearly every instance they obtain a higher price in their own country than they ask delivered here. Besides this there are the systems of export bounties and private kartell arrangements.

Miller & Co., Ltd., London Road Foundry, Edinburgh; Manufacturers of Chilled Iron Castings and Wheels for Railways and Mines. 813

Tramway car wheels have been sent from the United States when demand there was slack and sold in this country at any price they would bring. Such prices have occasionally been lower than the cost of manufacture in the country of their origin.

Firm No. **1,302**. Motor and Motor Carriage Manufacturers.

Motors, Cycles, &c.

Other European countries having had several years' start in developing the motor industry and, as a consequence of their business being developed, are able to manufacture on a large scale and therefore at a low cost.

The consequence is that the large importation of cheap foreign cars so restricts the demand for cars of English manufacture that we cannot make them on so large a scale as is done abroad and accordingly at the low price.

The Firefly Motor Co., 72, High Street, Croydon; Manufacturers of Motor Delivery Vans.

French competition in motor cars prevents us from making these at a profit, and so our trade is restricted to repairing motor cars and to making a few motor delivery vans.

814 **Foreign Competition at Home**

Mechanical Engineering.
Motors, Cycles, &c.—continued

THE MAUDSLAY MOTOR CO., LTD., PARKSIDE, COVENTRY; Manufacturers of Motor Cars.

It is reported in Paris (we believe it is true) that some of the French firms with the biggest outputs have made a financial loss in trading. Among these are some who produce the cheapest class of car, and they are the worst offenders as far as dumping their goods on the British market is concerned.

THE EAGLE ENGINEERING AND MOTOR CO., LTD., OAKFIELD ROAD, ALTRINCHAM, CHESHIRE.

It is not very probable that dumping occurs in the motor business to any extent. At the same time it should not be forgotten that several Continental manufacturers of motor cars who, by making a large quantity of motor cars, or rather one particular type of car, have greatly overstocked their own market, flood the English market with their surplus products at prices which even if not showing an absolute loss to these manufacturers, can certainly bring them no profit.

DENNIS BROS., LTD., GUILDFORD, SURREY; Motor and Mechanical Engineers.

The competition is caused by the French firms making in much larger quantities, and importing into England free of duty, approximately 25 per cent. cheaper.

JAMES RICKARD & CO., BRENTFORD, LONDON, W.; Cycle Manufacturers and Engineers.

815 We have absolutely lost two businesses through the import of goods we could have manufactured, therefore had to discharge all hands.

In one year alone owing to America's fearful over-production between 80 and 90 large firms gave up business and dumped their bankrupt goods into England at any price they could get.

THE RALEIGH CYCLE CO., LTD., NOTTINGHAM.

We are not much affected now but in 1896 and 1897 we were swamped and trade was ruined by cheap American cycles, producing great cutting of prices from which we have never recovered.

C. CONNAH & CO., QUEEN STREET, RHYL; Cycle and Motor Manufacturers.

Three or four years back the Americans sent England and our Colonies all their accumulations of old stock, flooded the market with bicycles at below cost price and the trade has suffered ever since, as that reduced prices below what our home makers could manufacture at with a profit. Result a public craving for lower priced machines, and retailers as well as makers have had to cut profits so fine that this business now shows a yearly loss instead of profit. Further to-day nearly all the smaller articles we sell such as bells, cyclometers, pedals, &c., are of foreign manufacture instead of English as they would be if the foreign goods were not admitted free.

816 JOHN MARSTON, LTD., PAUL STREET, WOLVERHAMPTON; Cycle Manufacturers.

American bicycles were undoubtedly sold in England at any price they would fetch for some years. At present the English market is comparatively clear of them. German and Belgian bicycles, but more particularly bicycle parts, come over from time to time at very low prices.

THE QUADRANT CYCLE CO., LTD., SHEEPCOTE STREET, BIRMINGHAM; Manufacturers of Motor and Ordinary Bicycles.

The retail price of our motor bicycle is £55; the retail price of Belgian bicycle here, £39. There is also a very large importation of motor bicycle parts from Belgium, France, and Germany, which are made up into complete motor bicycles here.

Under the prohibitive tariff the cycle industry in the United States developed enormously so that when the British cycle trade was booming in 1896 they made preparations to dump their bicycles here.

Cycles' imports from the United States into Great Britain in the two years 1897 and 1898 (after deducting exports) amounted to £827,965 and as prices were extremely low there was probably a displacement of more than double that value of British made goods, and great home competition ensued.

The effect was profits fell in one year, 1898 to 1899, a period of general prosperity, as follows:—

817 Cycle makers (56 firms, Capital £8,138,570) Fall	£259,341.
Tyre makers (11 firms, Capital £5,463,455) Fall	£152,948.
Tube makers (11 firms, Capital £1,848,995) Loss	£63,322.
Total fall in profits for one year	£475,611.

The profit on tyres was reduced by one third. The profit on cycles (an estimated allowance being made for four firms only partly engaged in the industry) was more than wiped out by the loss on tubes. Fifteen firms (total capital £2,595,447) in the three sections went into liquidation.

IMPERIAL CYCLE CO., LTD., BROMLEY STREET AND HACK STREET, BIRMINGHAM.

Complete cycle frames are brought over here from the Continent, then made up into cycles and an English name put on.

FIRM NO. **355**. Cycle Manufacturers.

Complete cycles from America, complete cycles, cycle frames and parts from Belgium, cycle parts from Germany are imported below our cost price. Many thousands of parts of cycles are imported from Belgium and other countries, and then completed here in England, being then sold as English cycles.

LINTINE & CO., 46, GREAT CHARLES STREET, BIRMINGHAM; Cycle Manufacturers, &c. 818

We only manufacture machines. Cycles are imported from Holland below our cost price. These are made up to the English design, and sold at 12s. to 14s. below our cost price.

FIRM No. **405**. Manufacturers of Anti-Friction Bearings, Anti-Friction Spherical and Cylindrical Rollers, Machine Bolts and Nuts.

I am a director of a cycle company in England which has also a large cycle factory in Germany and it is within my knowledge (I refer to actual transaction) that this German company pays to German makers about 15 per cent. more for their balls than the same balls from the same makers are sold in this country and this is the case after freight, depôt in London, and] travelling expenses up and down the country of the distributor are paid.

VILLIERS CO., BLAKENHALL, WOLVERHAMPTON; Cycle Accessory Makers.

The cost of production depends on the quantity manufactured. We should certainly say that cycle components (pedals, &c.) are sold here by German firms at cost price, in order that their output may be larger.

Our firm has for some years manufactured finished parts for a well-known cycle brake made by a British brake company. One of our men invented an improved lever for it. After having received orders for this lever for a year, this Brake Co. some twelve months ago accepted a slightly lower quotation from the "Fabrique Nationale" of Liège (Belgium) and placed an order there for £10,000 worth of these goods. A 10 per cent. import duty on manufactured goods would have given our firm the order, as it is our workmen in the department that made these goods are out of employment and some are begging. 819

FIRM No. **581**. Patent Tyre Manufacturers.

Tyres of all descriptions are imported from abroad to the disadvantage of British manufacturers who are unable to export their own goods with any advantage. Raw india rubber, if subjected to an import tax, would reach prohibitive prices, as it is mostly obtained from entirely foreign countries, hardly any coming from the Colonies at present, and as it is, the market prices fluctuate considerably.

Tyres from France are sold through agencies here at prices fixed by the agents to compete. The prices of the same article in France are higher.

Steel bars of any section (rolled) are offered by German and Belgian manufacturers at below cost price of same material made in Sheffield. Offers have been made us by agents of German steel rolling mills to roll any steel section free, charging only for steel and that less than Sheffield steel. This is solely to get the order and when competition is killed here, the price to be trebled. This is readily admitted by the agent; but of course not "officially."

Over £3,000,000 worth of motor cars and accessories were imported here last year all of which could have been made in England. 820

D. F. TAYLER & CO., LTD., NEW HALL WORKS, BIRMINGHAM; Manufacturers of Steel and Iron Wire, Spokes for Cycle and Motor Car Wheels.

It is admitted by the trade journals and trade associations of these foreign countries that the wire exported to British markets is sold below the normal cost of production in the countries of origin.

Pumps, &c.

FIRM No. **401**. Manufacturers of all kinds of Machinery.

A considerable number of German and American pumps is imported into this country at lower than cost price and, if the information we are given is correct, in many cases orders have gone to American firms having offices in this country owing to their prices being less than what it would cost us to manufacture the machinery.

JOHN KIRKALDY, LTD., 101, LEADENHALL STREET, LONDON, E.C.; Marine Engineers.

Pumps are imported from America below our cost price, their home demand enabling them to make very large quantities and export surplus to countries where they can be disposed of duty free—they being exempt from duties, rates and taxes and income tax in those countries. 821

FIRM No. **486**. Engineers' Agents.

We are informed that the pumps known as the "Worthington" Co.'s pumps, "Blake and Knowles" pumps, and "Snow" pumps, all American, are sold in the United States at their catalogue prices but after paying freight to this country they are sold here at less. Have no definite information however on the point. The only thing I am quite certain about is that the above companies have been now for some 16 or 18 years underselling English pumps so steadily and seriously that we have suffered considerable diminution of trade, and in return they won't admit our pumps except at a high duty.

FIRM No. **C 3,581**.

We believe the tendency is for competition to increase, as firms new to the English trade—both German and American—keep commencing to do business here. We do not think these new firms will be so successful as others who started some years ago, but the effect on British trade will be just as bad as ever. The foreign-made pumps are not nearly so good as British. Our prices are about the same. We find that a customer in England will accept poorer workmanship and material from abroad, than he would accept from a British maker.

Foreign Competition at Home

Mechanical Engineering. *Pumps, &c. —continued*

822 American competition is very keen, both here and in the Colonies. Generally the American pumps and valves are of a make not so lasting as British. The quality of the German production appears to be as high as the English, but of course they pay lower wages. For equal quality the American prices are no lower than the British. I have been informed by many Colonial correspondents and dealers that the American pump trust will consign £1,000 worth of pumps to be paid for when sold.

We could make for less net cost, but our establishment charges would be higher until we had their turnover. A pump manufactory was equipped specially at Christiania, with an American as manager, to compete with American makers in the British market.

Baird & Todd, Talbot Engineering Works, Talbot Place, Dublin; Engineers and Makers of Hydraulic Machinery.

There are American pumps and bearings on the market at a less price than we can make our pumps and bearings for, but on the other hand our pumps and bearings are much heavier in design, and more carefully fitted.

Beck & Co., Ltd., 130, Great Suffolk Street, London, S.E.; Hydraulic Engineers.

Imported articles are placed on the British market below the normal cost of production in the country
of origin. Raw metal is about the same cost abroad as in England and the residue cannot be accounted
823 for either by reduced rate of wages or better methods of manufacture than our own.

Glenfield & Kennedy, Ltd., Kilmarnock; Hydraulic and Sanitary Engineers.

We can hardly say that any of our home sales are subject to foreign competition, if any it is only very small. We have plenty of keen competition at home. We heard of the Belgians attempting to sell cheap meters of the Kennedy type in this country, but so far as we know it has not come to anything. Some years ago American taps were sold in this country pretty largely, but there are now very few of them used in Scotland. The quality was, we understand, not good enough.

The Hydraulic Engineering Co., Ltd., Charles Street, Chester; Engineers and Founders.

The foreign competition is negligible in comparison with the home competition. Whenever trade is inactive there is evidence of the class of work we manufacture being frequently undertaken at under our cost price. This is the result of the means of production at home being in excess of the demand at the time, and appears to be quite independent of the influence of imported articles of the same character, which are of small extent in our trade.

Watkins & Watson, 16, White Lion Street, Islington, London, N.W.; Makers of Organ Blowing Machinery.

American list prices are about the same as English. About 50 per cent. discount is allowed the agent
824 who has, to our knowledge, sold at over 40 per cent. discount off list prices, English discount to trade is 20
to 25 per cent., 50 per cent. would be under cost price. As the agent in this country has to dispose of at
least 50 a year under agreement, he makes his price to dispose of engines he has agreed to take.

The Phœnix Engineering Co., Ltd., Chard, Somerset; Manufacturers of Contractors' and Municipal Plant.

Special form of hand pumps for contractors, &c., similar to those we make are imported from Germany and America. We can compete in prices, although foreigners are low, especially considering freights, &c. What we cannot compete with honestly are the statements they make as to what their pumps will do, &c. Some countries also forget to state the difference between the English gallon and their gallon.

Firm No. **10,562.** Hydraulic Engineers, &c.

We recently tendered for a large British contract for work in the United Kingdom. Our chief
competitor was a German firm. Experiments were made to prove that we could satisfactorily supply the
particular goods asked for. The company inviting the tenders made their investigation and expressed
themselves perfectly satisfied. But the Germans got the contract at a slightly lower price than ours.
Had there been a 5 per cent. import duty in this country this order involving something like £25,000 wages to
825 our workpeople would have come to us.

Firm No. **1,535.** Engineer.

Water turbines and fans are imported from the United States and Germany. The imported machines are much lighter than those we make. Purchasers of British made machinery expect a more substantial class of machine than those imported, and if we made a lighter class it would be unsaleable.

Radiators, &c.

Firm No. **C 307.**

In selling English and Colonial made goods such as boilers, radiators, valves, &c., we meet with much unfair competition from American importations. We buy very largely and pay cash for everything—consequently can command the lowest figures, but we cannot sell at so low a rate as the American houses by about 10 per cent. to 15 per cent.

Acme Ventilating and Heating Co., 35, Tarleton Street, Liverpool.

So far we have only experienced American competition in ventilators, but we find their prices are higher than ours in most cases. Ours are more compact and scientific in practice and meet all requirements, so we can only assume the American has more bounce and push, and buyers don't very often go to the trouble of inviting other makers to submit their goods to scientific and crucial tests either as to efficiency or strength, 826 durability and workmanship. We have found in some of our Colonies particularly Natal that our designs are imitated and goods made from our patterns by local tradesmen. America competes with us particularly in ventilators that can be made from fine cast iron. We find such goods better made and finished than we can get them in this country hence we are compelled by competition to deal in certain regulating louvre and other ventilators made in the United States. We can only assume that the Americans have better facilities for production, all their goods being well finished and more attractive to customers, who will have the best and cheapest—we can scarcely think they are below cost.

ROYLES, LTD., IRLAM, NEAR MANCHESTER; Engineers.

We know that articles such as we make are imported at prices below reasonable sale figures in this country and a great many are sold as "British specialities," whereas not even the paint or the nails in the boxes are English.

G. GLYDON & CO., HOWARD STREET, BIRMINGHAM; Heating Engineers, &c.

Although we do not manufacture to any considerable extent we are well aware of the keen competition in heating apparatus, as we purchase American goods largely.

DINNING & COOKE, PERCY IRON WORKS, NEWCASTLE-ON-TYNE; Heating Engineers. 827

We buy a large quantity of American radiators, but this does not injuriously affect us. We prefer English-made radiators. American radiators and fittings are specified by one or more of the Government departments; why, we do not know. This should not be. Owing to their large stock the Americans can give quicker delivery than most British manufacturers. The Canadians make radiators, but they have not had the business enterprise of the rival companies and do not stock so largely. In France an American company has a factory, but it is compelled to have a fixed proportion of French capital. A duty on American radiators would stimulate the British or compel the Americans to manufacture here, hence all their workpeople would be customers of the British.

FIRM No. **1,297**. Engineers.

Radiators and boilers were formerly obtained from Canada but are now supplied by United States at lower prices and of a quality equally good. Steel shafting formerly obtained from Scotland is now bought at lower prices in United States.

SKINNER, BOARD & CO., RUPERT STREET, BRISTOL; Horticultural Builders and Heating Engineers.

We experience no foreign competition in the building department, but the United States and Canada manufacture and send us hot water radiators for heating purposes, which to some degree interfere with our own make of radiator. 828

FIRM No. **1,093**. Heating Engineers.

Cast iron sectional boilers and radiators are imported from America, but similar articles, copies of American, are now made in England at 2½ per cent. to 5 per cent. more cost.

FIRM No. **1,562**. Ironfounders and Heating Engineers.

The American manufacturers of radiators sell in United States at 22 cents per foot super, in Canada 17 cents per foot super. They are being shipped by makers at Hamilton, Canada, direct to London, England, for 34.24 cents per 100 lbs. This is 32s. a ton English. The freight for the same goods from here to London is 25s. a ton. In the one case they travel 126 miles by rail and in the other 3,500 miles by water. Radiators can always be made more cheaply in United States and Canada than here. For on account of the severe climate in winter they are a *necessity*; here they are a luxury only. There are many large factories in America devoted to their manufacture only. The association price in the United States is 22 cents per cubic foot but after paying freight over here and expense of storing at their warehouses they sell at 10½d. per foot delivered London, thus selling at ½d. per foot less here than in United States. This is dumping. They have taken nearly all our trade. We used to make far more than at present and we see no prospect of recovering it unless there is a duty of 20 per cent. put on the United States goods. We ship no goods to Canada and do very little with New Zealand. 829

T. TOWARD & CO., ST. LAURENCE IRON WORKS, BURRELL ROAD, NEWCASTLE-ON-TYNE; Engineers, Boiler and Tank Builders. *Accessories*

America sends here, below our cost price, steam pumps, automobile boilers and steam fittings. These appear to be manufactured in large quantities to standard designs, and are consequently cheaper than we can make them in small quantities.

Being users of comparatively small quantities of steam fittings it would not pay us to make for ourselves in large quantities but we think home firms making a speciality of these goods might well do so to a greater extent than at present. We are gradually increasing and standardising our stock of automobile boilers and steam pumps.

FIRM No. **454**. Brass Founders.

We quoted for tram car fittings per complete set £13 5s. The same were purchased in New York delivered free at £10 per set, which was about cost of our material and wages for the same goods.

Foreign Competition at Home

Mechanical Engineering. *Accessories—continued*

830 R. Pulvertaft, 119, George Street, Cork; Brassfounders, Coppersmiths, and Engineers.

We do not feel foreign competition except indirectly. It cheapens British goods and so undersells us in home or local trade.

Firm No. **224**. Engineers.

American firms instruct their agents to sell at any price so long as they receive the orders. The terms given to representatives here from both America and Germany, are such as to make it impossible to compete.

Firm No. **904**. Brass and Copper Tube Makers, &c.

The prices for brass condenser tubes and yellow metal sheathing in Germany and brass and copper tubes in France are far higher than the prices ruling on the British market, whereas the prices at which they are sold in United Kingdom are often below cost of production and always below the market price here.

Llewellins & James, Ltd., Castle Green Engineering Works, Bristol; Engineers, Brass and Bell Founders, &c.

We have no information that imported articles are placed upon the British market at or below the normal cost of production in the country of origin, but we feel convinced from our knowledge of the value of materials and labour that such is the case. 831

Sydney Smith & Sons, Basford, Nottingham; Brass Founders, Steam Gauge Manufacturers, &c.

We have before us an illustrated price catalogue of goods made by a German firm in which many of the leading articles, of the same design and pattern as ours, are quoted at such low figures as to place them at or below cost price. We know this to be the case on account of the price of the raw material and the cost of the workmanship put upon them. The industry that makes them must be either bounty fed or must pay only a scanty pittance for labour.

We have been informed that foreign made goods coming into the United Kingdom should carry on them the name of the country of origin. In our trade we have known goods imported into this country from Germany that have not been marked with the name of the country of origin. We also know that articles of steam appliances have been and are being sent to us from Germany and then put together here and sold as English made.

Firm No. **C 316.**

In the sale of certain appliances for steam users we find a German imitation (for which the patent has expired) retailed at a price which our English works inform us is very much below their works cost, and it is our impression that these articles can only be offered by the German firm at this price on account of their turning out the articles in very large numbers, and dumping their surplus on the English market. 832

Beck & Co., Ltd., 130, Great Suffolk Street, London, S.E.; Hydraulic Engineers.

Gun-metal valves, similar to those we make, are imported from America and Germany below our cost price. This is modified by the statement that the goods are frequently lighter and of inferior workmanship but large quantities are sold on account of price.

Firm No. **816.** Brass Founders, &c.

We suffer from imports from America below our cost price of valves and cocks of the globe type made by Fairbanks, Jenkins, Pratt and Cady and others; injectors of the Penberthy type; lubricators of the type made by Lunkenheimer, Cincinnati, Ohio; generally, these goods are much lighter than good English makes, consequently not so strong. The workmanship on the average is good.

H. E. Lupton & Sons, Scaitcliffe Works, Accrington; Iron and Brass Founders.

Assuming that America pays as much for labour and material as we do, and taking into account carriage and commission, we think valves are sold at less than cost price. As regards Germany, probably the longer hours and the less wages per hour will account for part of it.

833 Generally speaking the Americans and Germans being protected in their own countries in the making of valves, &c., obtain such a good profit on what they sell in their own country that they can afford to dump the surplus on to us at less than cost price and still have a good yearly profit. By so doing they avoid the temptation to reduce prices to their own countrymen.

Firm No. **C 1,364**.

We believe that large quantities of brass steam valves have been imported from America. This cannot have improved matters for British manufacturers. We make comparatively few steam valves and should have been glad to develop in that direction, but for the fact that the prices obtainable are distinctly the reverse of tempting. Competition among the British manufacturers themselves is no doubt responsible for this in a great measure.

Firm No. **892**. Engineers, Manufacturers of Evaporators, Distilling Gear, &c.

A direct comparison between our product and similar American gear on a cost basis is scarcely possible. The American method of listing their product appears to an unintelligent purchaser to give them an advantage in price. We cannot say that we know definitely of any instance of articles properly comparable with our own being sold in this country below our cost price.

S. Mason, Ltd., 58, Dale End, Birmingham, Cardiff, &c.; Manufacturers of Beer, Water and Steam 834
Fittings, Sanitary Engineers.

Steam fittings of American make are sometimes sold at less than cost of metal in the rough casting stage, the only profit and working expenses would be the dust of the metal in process of manufacture.

Firm No. **1,576**. Engineers.

Germany sends pressure gauges and water valves; Germany and France send clocks; and America sends pumps, all similar to those we make and under our cost price. We could make at same or lower cost if we adopt same methods and make in such large numbers. Norway also competes in pumps. There is a factory at Christiania which could not be kept going without the British market

W. Coulthard & Co., Lonsdale Street, Carlisle; Merchants, Oils, Belting, Engineers' Accessories, &c.

The proportion of foreign made is largely increasing, for though small direct importers ourselves, a
considerable proportion of foreign made goods is bought by us from importers. The principal increase
so far as we are concerned is in composition belting, binding twine for harvest and steam threshers, and gun-
metal steam valves. We buy these because they are cheaper than British made and special makes of valves
which we cannot get here at so low a price. Our patriotism takes a back seat when the foreign traveller
calls and offers, say laces, belting, &c., at a lower price than we may have been buying at. We dealers cut
each other and are driven to buy as cheaply as we can; we need to be protected from ourselves at port 835
of entry.

The Castleton Steam Packing Co., Broadheath, Nr. Manchester; Manufacturers of Steam and Hydraulic Fibrous Packings.

Chalk and soapstone packing and asbestos packing are sold by German manufacturers in this country at prices considerably below what the materials used in the manufacture of same could be bought for, independent of taking into consideration the cost of manufacturing. The chalk and soapstone packing is manufactured from cotton yarns and French chalk. The French chalk is not procurable in this country, but obtained from mines chiefly in France and Italy, and therefore we are on equal terms with German manufacturers in buying this material with the exception of the difference in the freight charges. As to the cotton yarn, we should be on better terms and able to buy cheaper than the German manufacturers.

The United Asbestos Co., Ltd., Dock House, Billiter Street, London, E.C.; Manufacturers of Asbestos Goods.

It is openly stated by certain Continental and American manufacturers that they can and will undersell
the English manufacturers as it is their aim to increase the bulk output of their factories and by this means
to reduce the cost of production and so enhance profits on the sales made in their own protected countries.
In Germany, Italy, Austria, France and America manufacturers' combinations are formed for the purpose 836
of increasing the prices to their own consumers. Under the auspices of one of these combinations asbestos
manufactured goods are sold in Germany wholesale at prices 25 per cent. in excess of the prices at which
such goods can be obtained anywhere in England from Germany direct, in even small quantities.

The Richter Manufacturing Co., Joseph Street, Leeds Road, Bradford; Makers of Oil Economisers, &c. *Miscellaneous*

Imported articles from America are placed upon the British market at or below the normal cost of production in that country. We come to the conclusion that in order to push the sale of their oils the big American companies offer these tanks at a nominal price which is much below what it really costs them to produce.

Lacy-Hulbert & Co., Ltd., 91, Victoria Street, London, S.W.; Pneumatic Engineers.

The value of air compressors alone imported into the British Isles from America and Germany in 1903 was enormous and considerable loss of business would have occurred to us had we been in a position to manufacture such machines. The profit on those machines goes to merchants who are the only parties to benefit in this country.

Firm No. **500**. Brass Founders, Finishers, &c.

A German manufacturer last year offered to make gas meter indices at a price less than what we give 837
our workmen for making them. On asking him how he could give so low a price, he said trade was bad, and
he had to keep his works going, even at a loss. He would not guarantee that he would supply the index
this year at same price.

Firm No. **889**. Gas Meter Manufacturers.

We have had various brass and other manufactured goods offered to us below our cost price and also below the foreign manufacturers' cost price, the representatives of the foreign firms explaining to us that their works were engaged in manufacturing goods of a different class, but that in order to keep their works and employees engaged during the slack season they take up other manufactures and sell the products below cost price, finding this more profitable than closing down their works.

The Allen Co., 39, Victoria Street, Westminster, London, S.W.; Acetylene Gas Plants and Accessories Manufacturers.

We do not experience any competition at present from imports below cost price in the country of origin, but we expect to do so as the industry grows.

838 **Foreign Competition at Home**

Mechanical Engineering. *Miscellaneous—continued*

STEEL BARREL CO., LTD., UXBRIDGE; Manufacturers of Electrically-welded Steel Casks, &c.

We experience foreign competition at home in cylindrical steel barrels. These are mostly riveted if made abroad, but one foreign firm makes electrically-welded drums and has lately begun to imitate us in steel barrels of the smaller sizes. Our competitors are French, Belgian and especially German makers and imitators. The foreign quality is inferior to ours and some of the articles are delivered into this country at prices much below our cost price. Cylindrical drums costing us 32s. to manufacture and containing 200 lbs. of steel costing us 19s. are sold in Manchester by a Belgian firm at 26s. Many similar instances can be given.

HENRY BALFOUR & CO., LTD., DURIE FOUNDRY, LEVEN, FIFESHIRE; Engineers and Iron Founders.

No country could continue to export under the cost of production.

THE IDEAL GAS CO., LTD., BLACKBURN; Gas Engineers.

Our trade is exclusively a home trade and has not yet been invaded by foreigners. The trade is only 7 years old, being an entirely new industry.

FIRM NO. **1,476.** Engineers.

Steel gas cylinders for containing nitrous oxide gas are imported from Germany.

839 The size known as 100 gallon size are sold, we understand, at prices which we cannot touch, and we now make very few comparatively.

FIRM NO. **C 913**.

The competition from the United States is possible only by reason of the home trade being so profitable from the tariff protecting it, aided by the cost of production being reduced to a fine point by means of the latest appliances, directed by energetic and intelligent management, which largely compensate the higher wage and salaries ruling in that country.

ROYLES, LTD., IRLAM, NR. MANCHESTER; Engineers.

Articles are sold in this country considerably under the price at which they are sold in the country of origin, and we are led to the conclusion that they dump the surplus productions to the advantage of their total productions.

FIRM NO. **304**. Engineers.

We have information to the effect that the goods which are imported to this country can only be bought in their own country at from 25 per cent. to 33⅓ per cent. higher price than what they could be sold for with a very small margin of profit in this country.

840

Industrial Engineering. *Machine Tools and Parts*

A. A. TATTERSALL, MILL HILL EMERY WORKS, BLACKBURN; Emery Wheel and Emery Machine Maker.

Last June the Americans dumped 80-odd tons of emery wheels into Leicester, sold them by auction for what they would fetch and threw the English makers slack for months. English merchants, not makers, buy mainly foreign emery wheels and machines. The foreigners know our market price and compete to allow our merchants to undersell our manufacturers. Our merchants buy foreign machines and wheels, etc., because they must disclose the name of maker and if an English maker the buyer generally gets his supply from the maker.

J. PARKINSON & SON, SHIPLEY, YORKS; Iron Founders, &c.

We suffer from foreign competition in machine tools generally, of American and German manufacture, not so much from low prices of the best productions, but on account of supposed superiority. This idea is a vanishing quantity. We find it continually easier to hold our own, as the prejudice of English buyers yields to facts. In low grade small machine tools the prices at which they are offered here from the north of France may not be below our cost price, but there is not sufficient margin for us to cover trade risks and a legitimate working profit.

S. H. HAMER, THE PATENT STEAM HAMMER WORKS, HALIFAX, YORKS; Machine Tool Manufacturer.

841 I experience foreign competition in respect to lathe chucks, foreign chucks being sent in for home use and also for export with English lathes.

FIRM NO. **554**. Machine Tool Makers.

Sundry small tools and detail parts of machinery are imported from United States, being better finished owing to extreme specialisation by American makers.

LINDSAY, CARVERHILL & CO., WEAR ENGINE WORKS, SUNDERLAND; Engine Repairers.

In the case of bar iron which is now imported the low price offered by the Belgian manufacturers is the cause. In the case of small engineering tools the Americans have a better appreciation of what is required.

A. HAWORTH, SONS, WEST END IRON WORKS, MEARCLOUGH, SOWERBY BRIDGE; Engineers' and Machinists' Tool Makers.

A good number of lathes and other machine tools are brought to this country from America, but we cannot speak with certainty about the cost. Our manufacture is the best possible quality and not low priced.

Ransome & Marshall, 67, Tithebarn Street, Liverpool; Engineers and Exporters. 842

Steel tyres, rails, wire billets, smith's tools, engineers', &c., lathes, drilling machines, a list would cover this sheet if put in individually, are imported from United States, Germany and France below our cost price. See the quays at Rotterdam simply flooded with materials that can be made in England.

Hudson & Griffith, Dalton Tool Works, Keighley, Yorks; Machine Tool Makers and Engineers.

We do not know of any imports below our cost in our trade but we can buy American lathes for less than we can sell them, from merchants in this country.

J. Tangye, Park Lane East, Tipton; Manufacturer of Machine Tools.

The machine tool trade suffers more than almost any from unfair competition and dumping. My machines consist of 8 in. lathes and milling machines, but the latter having some special features are enabled to keep just above water.

Lathes and milling machines from Germany and United States are not sold in this country below cost price as a general thing, but so little above that it is very difficult to compete. In America prices are admittedly 2½ per cent. to 5 per cent. higher for the same machines as disclosed by the United States Commission last year, and in practice a good deal more.

J. Butler & Co., Victoria Iron Works, Halifax; Engineers and Manufacturers of Machine Tools. 843

We have no knowledge of any imports below our cost price. Prices for the same sizes of machines vary considerably with different makers. We are quite sure however that American and German machines are sent here and sold at lower prices than they are sold at in the country of origin.

Webster & Bennett, Atlas Works, Coventry; Engineers and Machine Tool Makers.

America and Germany send boring and turning mills chiefly, not below our cost price, but the prices they sell at here in competition with us leaves us only a very small margin of profit.

The J. C. Nicholson Tool Co., City Road Tool Works, Newcastle-on-Tyne; Manufacturers of Machine Tools.

We generally cut our prices down for foreign markets and we believe foreign manufacturers do the same, perhaps to the extent of 5 per cent. to 10 per cent. but we do not think they supply anything in our line in this country under cost price.

Firm No. **238**. Makers of Heavy Machine Tools.

We have often information of articles being placed on the British markets at or below the cost of
production in the country of origin. This is mostly the case from the United States and is now known as 844
"Dumping." We refer to small machine tools.

J. Archdale & Co., Ltd., Ledsham Street, Birmingham; Machine Tool Manufacturers.

We know that certain American lathes and other machine tools could not be produced at the prices they are sold at in this country. The prices obtained for the identical machines in America are considerably in excess of their English sale prices.

Firm No. **907**. Manufacturers of Engineers' and Machinists' Tools.

Germany sends us stocks, dies and taps for threading at 25 per cent. less than our cost price; Germany and the United States send twist drills for iron and steel drilling and milling cutters for iron and steel milling at 15 per cent. less; the United States send tube or pipe wrenches at 25 per cent. less and Germany sends ratchet braces for drilling iron and steel at 15 per cent. less than cost.

The Yankees and in a less degree the Germans, having their market protected, and a regular and more certain opportunity of getting rid of their manufacture, having thereby been encouraged to sink capital in new plant, and also being able to make large quantities of goods for stock, have arrived at a greater state of proficiency, and as a result have been able to command a better price than similar machine tools of British manufacture, not only abroad, but even in this country.

845

Firm No. **1,094**. Iron Founders and Machine Tool Makers.

When the writer was over in America, he priced a tool and got the rock-bottom price that they were sold at in America, and when he came home found that the very same tool was being sold at 10 per cent. less.

Ludw. Loewe & Co., Ltd., 30-32, Farringdon Road, London, E.C.; Merchants in Machine Tools, Small Tools and Gauges.

We have no evidence of dumping in our business; on the contrary, the prices of imported machine tools have been and are for the most part higher—apart from intrinsic value—than machines of corresponding capacity and purpose manufactured in Great Britain.

In our opinion the proportion of foreign-made goods to British-made goods in the machine tool trade has, if anything, diminished during the last two years. We consider this is chiefly due to the adoption by British machine-tool makers of the more modern methods of manufacturing in vogue amongst their foreign competitors, improvements in and greater attention to design of their machines and tools, greater specialisation in product and more practical management of works, all of which we believe to have been largely brought about by and to be the result of external and foreign competition: another important cause being the greater freedom of the British manufacturer in his employment of labour.

Industrial Engineering.
Machine Tools and Parts—continued

846 Firm No. **1,128.** Manufacturers of Rolling Mills and Engines, Forging Presses, &c.

In our class of work it is very difficult to prove the actual cost of foreign manufacturers, but our opinion is that German competitors at present are quoting below their actual costs when in competition for the English market. We recently tendered for a large metal mixer and have been informed that a German firm offered to supply this mixer at 5 per cent. below the lowest English tender. Their offer was however not accepted and we obtained the order but this sort of competition tends to prevent a fair price being obtained. Improvements in steel works machinery have been very much held back during the last two or three years owing to the continual fear of American or German steel being dumped on the market. This is a very serious matter because it is holding back many of the English steel works from keeping their plant up-to-date so as to be able to compete successfully. Protection even to a moderate extent would have a very beneficial effect in giving confidence and encouraging steel works to put down new machinery so as to be well up-to-date in their process of manufacture.

Firm No. **C 632.**

I commenced a small shop in Manchester at the end of 1898, making tools of my own design, and
was by dint of hard work and care in all directions making good headway. American competition in view
of the trade boom in their country had not reached its present unfair stage, at least in my line, and German
rivalry was only beginning, being held in check for much the same reasons. Towards the end of 1900
847 however I found orders harder to get, and from that time forward things got worse, until I had to give it
up, so that in 1903 I had closed the shop.

Firm No. **5,560.** Dealers in Engineers' Hand and Machine Tools.

We feel the effect of foreign competition very much, as many hundreds gross are sent to Sheffield weekly and then exported as British goods. This is only one of many similar cases and we ourselves lose orders accordingly and the British workmen lose employment. There are certain lines we import from the Continent which we should have made here if there was an import duty levied.

Firm No. **549.** Manufacturers of Miners' Drills, &c.

Files from the United States are delivered here at 70 per cent. off list less 5 per cent. for cash. The Sheffield price is 67½ per cent. and 5 per cent. Practically every blacksmith in this country uses United States rasps, because they are cheaper than English.

E. B. Grandage, Longside Lane Tool Works, Bradford; Gas and Steam Fitters' Tool Maker.

In the pipe or gas tap trade, certain American firms sell in England the finished article, cheaper than
I can buy the same weight of material in a steel forging here, before any labour is put into it by
me. American taps and German taps and stocks and dies are imported here under my cost price. Germany
848 and the United States, especially Germany, send screwing tackle and hand tools into this country in largely
increasing quantities, at a price that I cannot produce at. One great source of trouble is that many
merchants import German tools and sell them as American. American tools have justly made a good name
for their quality, but many of the German tools are very inferior. It is not so difficult to compete against
the American tool, as the difference in price is not so great as in the case of the inferior German article,
but it is very difficult to compete against the cheap German tools which are sold by merchants under the
name of American tools.

Freeman's Emery Wheel Co., 16, John Dalton Street, Manchester; Manufacturers of Emery Wheels, &c.

Our regular customers get quotations for the articles we make from the United States and Germany much under our cost prices and at which it is impossible to make them without loss. A few months ago a United States emery wheel maker dumped down some 80 tons of wheels and these were offered in Leicester by public auction at any price that could be obtained for them. Germany, France, Belgium and the United States have sent large quantities of emery wheels to this country and are practically ruining the home trade in emery wheels, emery and glass cloth, etc.

Agricultural Machines and Tools

Firm No. **681.** Manufacturers of Agricultural Tools and Knives for Machines.

849 The only competition that we feel in regard say to edge tools, &c., is that foreign merchants often attend to the buyers' requirements more carefully and help their manufacturers to supply suitable patterns, &c. We rarely get any information from the merchants we do business with, though we cultivate that trade and offer to supply samples and help them all in our power to push for good quality tools, &c. The foreign agent seems to adapt himself to the customer more. The merchant ought to encourage the manufacturer to stamp his "trade mark" only on the goods supplied—the label could mention the merchants' name under "Manufactured for." This would be far better for the best merchants and also the best manufacturers.

J. Cooke & Sons, Lindum Plough Works, 53, Monks' Road, Lincoln; Agricultural Implement Makers.

The United States, Canada, also Germany (the latter only up to the present in small quantities) import ploughs into this country. We do not know what price importers pay for them, but our experience is that the importers are always prepared to and do allow larger terms to the sellers than the English manufacturer, thus reducing the profits of the home manufacturer to a minimum; our profits have decreased considerably during the past 15 years owing to the expense of procuring new customers and retaining old ones, which was unnecessary before the advent of the foreign competitor.

We believe the ploughs imported into this country from the United States and Canada are sold at a profit to the producer. During the building up of their factories, prohibitive tariffs have assured to them

850 a monopoly of their very large home markets at highly remunerative prices and they have thus been enabled to put down special plant and standardise patterns, and now they can produce at a much less cost than the English manufacturers.

T. Thompson, Implement Depôt, Castlegate, Penrith ; Agricultural Engineer, &c.

I suffer from competition from American manufacturers of binders, mowers, rakes, tedders, cultivators, &c., as I only deal in English and Canadian implements and machinery. I know it to be a fact that a great many implement warehouses in this country are heavily stocked with American implements and machinery, which are offered and placed on the market at a much lower rate than British makers seem to be able to afford them at.

J. Organ, Olveston, Tockington, Gloucester ; Machinist, Engineer and Builder.

In this country the trade in agricultural machinery has been practically ruined through foreign competition. This is one thing especially that should be protected by a high tariff.

Firm No. **681**. Manufacturers of Agricultural Tools and Knives for Machines.

We support Free Trade and if we cannot get other countries to adopt it, will get as much as we can. We shall get more by keeping to that policy than by any sort of preference, retaliation or protection. If in all our industries we keep the method of manufacturing "up-to-date" we can hold our own and often cut out other manufacturers. This is our experience and opinion. 851

Firm No. **764**. Engineers.

The chief competition in the home trade in ploughs is Canadian at present though American makers are also represented. There is no German competition worth mentioning. In horse rakes the United States and Canadian makers are very strong and the prices "cut-throat." In binders we have been driven out of the trade by American and Canadian competition. In portable railways and wagons the chief competition is from Germany and the prices are very low, but the quality is in accordance with the price. Since the French tariff came into force our main French competitor appears to have dropped out both in the home and export markets. In harrows and cultivators Canada and American competition is keen at very low prices.

J. McKidd, Thurso Foundry, Thurso, Scotland ; Engineers and Agricultural Implement Makers.

Reaping machines and reaper and binding machines are imported under our cost price. I am told one maker of these machines sells his make in the United States at £40, he dumps them into this country and sells at £25 each machine (home makers can't make them at that price). It is the same with other machines, such as mowers, rakes, ploughs, scarifiers, &c. ; all these are dumped into this country from the United States and sold at a price which would leave no profit to home makers.

The Lancashire Agricultural Implement Co., Ltd., 31 & 33, Cazneau Street, Liverpool ; Manufacturers of Agricultural Implements. 852

Grubbers, scarifiers, and cultivators are imported from the United States. We are however able to some extent to meet this competition by importing Canadian goods, which meet with favour.

Firm No. **845**. General and Agricultural Engineers.

Canada and the United States, also the United States makers from their recently established Canadian factories, send us binders, mowers, reapers, ploughs, and drills, similar to those we make, at under our cost price. Ploughs and corn drills are also imported from Germany.

T. Pollock, County Cavan Stores, Ltd., Cavan ; Bicycle and Agricultural Machinery Manufacturers.

Of late years the competition from American bicycles has not been of much account owing chiefly to the low grade that was generally sent to this country. American farm machinery, principally mowing machines, is being sold at a price that no English or Irish firm could turn them out at to show the smallest profit. M'Cormick two-horse mower is being sold in ones and twos at £8 10s. each, built up and carriage paid to destination.

John Scoular & Co., Stirling ; Harrow Makers, for Agricultural Purposes.

853 Horse rakes and harrows are imported into this country from America below my prime cost price and sold in this country under the cost of production. They cannot produce the articles at the price at which they are sold here.

Firm No. **1,388**. Engineers.

Lawn mowers sold by us wholesale at 17s. 11d. each and costing us 13s. each, are dumped in Liverpool and sold to our customers at 9s. 6d. and 10s. 6d. each. The same applies to meat choppers, &c., from America, and to knife cleaners and cone paint mills, from Germany.

Firm No. **1,086**. Agricultural Engineer.

American ploughs, cultivators and mowing machines are sold so cheap that it is impossible for small concerns to compete with them. I was offered a quantity of American mowing machines delivered Liverpool at £7 5s. each. They cannot possibly be made at the price.

Follows & Bate, Ltd., Manchester ; Engineers.

As a result of several visits to the United States and inquiry made on the spot, we know for a fact that for numerous saleable articles distributed in the United States by hardware merchants' dealers

854 the lowest and "rock-bottom" prices paid by dealers in cash to American manufacturers are 20 per cent., 25 per cent., 30 per cent., 35 per cent., and more, higher than the manufacturer charges English firms who import the same goods for sale in England, having proved it by purchases of our own in the United States. The American manufacturer makes a double profit, that is to say, he adds the tariff duty to a varying profit, and is only too glad to remit more than his tariff profit for export, either to reduce or clear his stocks, or to enable him to make in larger quantities. The small profit (if he makes any on export orders) is more than compensated for by the larger profit made on goods made for home consumption. If, in running large counts, a few thousand machines (lawn mowers for instance) are made in excess of home requirements, and this frequently happens, cargoes are shipped to Liverpool and sold below cost in order to clear, to the great detriment of English trade. But for these dumpings we could find employment for 100 more men in making lawn mowers alone. Our sales of lawn mowers of the cheap type have been reduced by several thousands annually, entirely owing to American importations and copies.

Firm No. **370.** Agricultural Implemements and Machine Makers.

I am much surprised at the price at which ploughs from the United States are made and offered on our markets. I expect English money is good money, and the foreigner will sell at any price to get hold.

Firm No. **994.** Agricultural Engineers, &c.

855 We cannot give an actual case; we are fully aware however that the Americans sell practically the same goods in America at a higher price than is obtained in this country. American visitors in our own local market have intimated that American harvesting machinery is obtainable at less than such goods can be obtained for in America.

Martin's Cultivator Co., Lincolnshire Iron Works, Stamford; Agricultural Engineers.

Implements for the same purpose as those we make are imported from the United States and Canada and are retailed at about the same price as ours.

The foreign firms have been able to sell their goods, though inferior to ours, through the puffs given to them in the English press. Foreign firms usually allow about 10 per cent. more discount from list prices than English manufacturers and send goods on sale to save warehousing expenses. Agents have been induced to sell foreign goods for above reasons so as to obtain a larger profit and are able to palm these goods off to customers owing to the press reports of the touting Yankee.

Milne & Macdonald, Lockerbie; Agricultural Machinery Importers.

We import a large amount of agricultural machinery, mowers, binders, &c. Though we must admit
such articles by some makers are dumped on this market at what is generally supposed under cost, these
856 are the exception, only second-class articles made to catch trade are thus sold. Those of our own import
and other good makes are sold here at a paying price.

Ley's Malleable Castings Co., Ltd., Derby.

In Chicago we have customers who individually order castings for 20,000 to 100,000 harvesters per
season; it will thus be seen that in Chicago we can put down special machinery for making these castings,
which not only enormously increases the output per hundred square feet of shop floor, but also requires less
supervision, and ensures much less waste in the manufacture. We cannot do this in England; we cannot
afford to spend £3 in machinery to save £1 in cost, and then at end of season find our customers change
their designs, and our machinery rendered useless for their future requirements. Broadly speaking, owing to the
jobbing characters of the orders we get in this country we require works in area and cost equivalent to
those in the United States having nearly double the output, and we see no prospect of improvement in this
respect until our largest customers are in a position to secure more of the home trade than they do at present.
As an illustration, we do not think that the combined output of British implement makers of 5,000 self-binding
harvesters per year represents more than about 5 per cent. of the sale of these machines to British farmers,
the other 95 per cent. are dumped on the British market by United States manufacturers, and this not neces-
sarily at a loss to those makers, as their enormous home demand added to that of the British market reduces
their labour costs and establishment charges to the minimum. We think that a 15 per cent. to 20 per cent.
857 tariff on agricultural implements would enable our British makers to command the home trade, the reduced
costs due to enhanced demand would enable the British implement maker to sell with profit at a price little
if any in excess of that secured at present. We with the increased repetition orders could sell malleable castings to
the implement maker at a much lower price, and still make a profit equal to that we now make at the higher selling
rates. When trade is quiet as now in the United States our customers send orders there for large quantities
of articles, getting for these a specially cut quotation, whilst they continue to send us the orders for the
smaller quantities and more unprofitable work. Owing to the enormous home demand the United States
manufacturers have works on a very large scale, and dealing with much larger repetition orders than we get
on this side of the Atlantic their establishment charges are much lower and they are able to quote prices
for the biggest orders that we get on this side that we cannot possibly profitably touch; for example, a
firm financially associated with our business here have in Chicago works of a productive capacity of over
1,000 tons of malleable castings per week, their office staff is not so large as ours here and they have only
the same number of foremen, yet our works are the largest in Europe engaged in this speciality and we
may safely assert that our output is greater than the combined one of our competitors in Great Britain, yet
the demand on our resources is only about one-fifth that in Chicago. Take the agricultural implement
business as an illustration: we make most of the malleable castings used in the manufacture of self-binder
harvesters. We do not think the total output of these by British implement manufacturers exceeds 5,000
machines per year.

Hugh Thomas, Valley Foundry, Valley, Anglesea; Manufacturers of Agricultural Implements and Quarry Machinery. 858

Foreign countries have made inroads on markets in agricultural implements of all descriptions, quarry machinery, &c. The country is overrun with an indifferent quality of foreign goods which greatly interferes with English industries.

Beaumont's, Ltd., Pump Works, Brinksway, Stockport; Scouring and Bleaching Machines, &c., Manufacturers. *Textile Machinery*

There are no articles imported into this country below the cost price of those we manufacture, to the best of our knowledge.

Firm No. **10,273.** Merchants.

We find American machines better adapted for our trade, quicker, lighter, cheaper, not so well made perhaps, but better paying machines.

Firm No. **315.** Lace Machine Maker.

A few embroidery machines are imported into this country from Switzerland and Germany but no English machine builder has yet attempted to build these machines on account of the low price at which they can be bought from these countries. 859

Firm No. **317.** Manufacturers of Cloth-finishing Machinery.

We cannot produce machines similar to the German at their price. Cloth manufacturers will give more money for German machines than they will pay us.

G. A. Binns, Archer Street, Halifax; Manufacturer of Machine Combs for the Textile Trade.

I cannot say definitely if the combs imported are sold under cost price. Regarding the tracing wheels, the material in one instance costs me what the wheel is sold at here. For this wheel I had practically a running order for a large London firm up to two years ago, when they sent me word that they had lost their best customers on account of the cheap importation. Prior to this I could set my men going for a couple of weeks at a time, certain the goods would be called for, but now I can only make them to order and the quantity is very small compared with what it was. I spent considerable time as well as money in perfecting this wheel, which would undoubtedly have found employment for many more weeks during the year than what is the case now, but for the foreign wheel coming in free.

Lowe & Johnson, Poplar Street, Nottingham; Pleating, &c., Machine Builders.

Pleating machines are imported from America but not under the price I can produce them at. I can sell in their home markets and do so. 860

Baron & Hogarth, Kendal, also at Belfast and Galashiels; Reed, Cotton Heald and Wire Heald Manufacturers.

We could not say that articles similar to those we make were imported below our cost price as we are acting as middlemen only for the German wire heald, but it certainly comes into this country at a price that we could not touch supposing that we purchased a machine to make this class ourselves, and that is our reason for standing off these machines at the present moment.

Whitehall & Crewe, Thoroton Street Works, Nottingham; Lace-Winding Machinery Manufacturers, &c.

Our trade rises or falls with the lace manufacturers on whom we are dependent. As no trade suffers more from unfair competition than the lace trade, which is now nearly extinct in Nottingham, and at the present time at a standstill, we are being ruined likewise.

Firm No. **2,787.** Manufacturers of Cards made of Hardened and Tempered Steel Wire.

We personally experience foreign competition in the Manchester district by the importation of cards from Germany for flannelette raising machines which are being sold at 15 per cent. to 20 per cent. under our producing price. Similar cards made here and exported to Germany and other continental countries we are informed would have to pay 40 per cent. or 45 per cent. duty. 861

Bertrams', Ltd., St. Katherine's Works, Sciennes, Edinburgh; Makers of Paper Mill Machinery, Gearing and Steam Engines, &c. *Paper, Printing, &c.*

We have experienced German competition in web-glazing calenders for paper makers; and three paper-making machines have been imported from the United States into this country.

Frank Sheldon, Wells, Somerset; Engineer.

We do not think paper-making machines for boards and glazing calenders are placed here at or below normal cost of production in America. What we contend is that the workmanship is not equal to our own or the design and construction equally substantial.

Firm No. **1,383.** Electrotyping and Stereotyping Engineers.

Machines are sold here at a lower price than in the States; as an instance, one particular machine to the best of our knowledge cannot be procured under £154 10s. in the States, whilst the same make of machine has been frequently sold over here for £100 to £110, evidently the reason being on account of our price here being £100 which we had lowered from £110.

862 The United States is our principal competitor, but we have not much to say against cutting of prices, as this last three years they have kept the prices up, but through the American boom two or three years ago a great many firms in this country have got hold of the idea that American machinery is the only good plant to be obtained and irrespective of price they order from the United States, but no doubt a duty on it would deter them from doing so. We will quote you a recent glaring instance. We tendered for a plant the cost of which was £1,400. Two or three American firms also tendered and on following the matter up we were told our price and time of delivery were satisfactory, but the directors had decided to order an American plant as they were under the opinion that it was better than an English one. We believe that the American price was £100 to £200 more than ours, anyway it was decided to order the American plant through the London agents. These agents have through another source got estimates for part of the plant from us, and we have been told that we shall get this part of the order in a few days, but our name is not to appear, so that the firm who require an American plant will in reality have partly an English one, and as they will not know, no doubt their feelings will be gratified. But unfortunately this does not occur with every foreign plant ordered. Germany is also exporting machinery to this country at very low figures.

Linotype & Machinery Ltd., 188, Fleet Street, London, E.C.; Engineers.

863 The principal articles in respect of which we experience foreign competition are printing machines, the foreigner being able to place them on our home market at a cheaper price than those we manufacture. From the same cause we suffer adverse competition in the sale of printing ink, movable type and metal for Linotype composing machines. With regard to the latter from the fact that raw material of type metal (antimony, tin and lead) can be purchased and manufactured on the Continent cheaper than we can do it in England, German firms are at present placing on the home market metal at a lower price than we can. So far as we are aware articles in which we have any competition are not imported into this country below our manufacturing price, but there are exceptions. Foreign manufacturers have secret sliding scales for the sale of machinery and, for the sake of getting first machines into the country and thus laying the foundation for future trade, it has been our experience that machines have been placed with British firms in some instances at a price lower even than our cost of manufacture. These cases however may be regarded as advance advertisements. Now that some of the earlier patents on the linotype machine are expired, an American Company, who received a million in cash for their patents in Great Britain, are threatening competition in this country by exporting machines made in America. We cannot retaliate upon them because their patent laws give their patents a much longer life than is given in Great Britain (17 years being the life of a patent in the United States) and they are further protected by a tariff of 30 per cent. on machinery.

Payne & Sons, Atlas Works, Otley, Yorks; Printers Engineers.

864 We suffer from foreign competition in printing and paper-cutting machines. Our foreign competition is met with chiefly from the Americans and Germans and we have no doubt if import duties were put on these foreign machines the selling price would then be so high that no sales could be effected against our lower prices as even at present the reason these foreign machines are not more easily sold is that their price is too high.

Firm No. **1,262**. Manufacturer of Machine Knives, &c.

Our trade is a rather peculiar one, and is done entirely with consumers; hence we are scarcely in a position to give positive evidence. We are given to understand however that some of the printers' and cardboard box makers' furnishers buy and sell foreign knives. To the best of our belief, the following knives, touching our trade, are sold in this country:—American guillotine knives for printers and leather dressers, American rotary knives (chiefly small) for cardboard box makers. German rotary knives and small cutters for cardboard box makers. German fancy punches for labels and Christmas cards, German brass and steel dies for Christmas card work, &c. We experience this competition indirectly. Printers' furnishers, cardboard box makers' furnishers, leather dressers' furnishers and perhaps large manufacturing stationers import foreign knives. The best of these are American ones.

G. Christie Ltd., 197, Broomloan Road, Govan, Glasgow; Wire Drawers, &c., Manufacturers of Dynamo Brushes.

865 Germany sends fine sizes of wire in brass, copper and bronze and paper machine wire cloths below our cost price. The competition in the last-named from Germany has been particularly severe these last two years.

Ullmer Bros., 27, St. James Walk, Clerkenwell Green, London, E.C.; Printing Machine and Material Manufacturers.

Wire-stitching machines are imported below our cost price from Germany. We have given up making these in consequence.

W. E. Cook, Turnagain Lane, London, E.C.; Printers' Furnishings.

It is asserted that American machinery of same make is to be got here cheaper than in country of production, but I have never heard a serious statement that any sacrifice is made. It should be understood that in high-class printing machines constant improvements and a comparatively limited demand make it undesirable for manufacturers to hold much stock.

So far as my knowledge goes American competition in my trade began in or about 1880 by the introduction of types in convenient point bodies which quickly captured a large portion of the jobbing type trade of the country and prepared printers to favourably report other aids to their trade of American origin. It was really a walk over for the Americans due to the ring formed by our five leading founders who adopted a common classification and schedule of prices. Now the ring exists but in name, prices have been reduced, new

866 type faces produced at intervals, the point system of bodies grudgingly adopted and a more accommodating disposition evinced to buyers, all to the advantage of the printer. The Golding presses at the time of their introduction had no rivals of home manufacture, were well made and deserved their popularity though in some respects of light build which however was compensated for by speed, accurate register and a maximum inking capacity. Home manufacturers now may be said to have got back this press trade by copying the foreign patterns and improving their details.

Firm No. 828. Machine Wire Makers.

The wire used for machine wire costs at least as much in Germany and France as in the United Kingdom and allowing for the lower wages and longer hours of labour on the continent we are of opinion that paper machine wires are being sold in this country below the normal cost of production in the country of origin. We also know that machine wires from Germany are being sold in this country at a lower price than they are sold in Germany. The reduction in our sales is entirely due to foreign competition. Our wages in 1902 were £9,318 17s. 11d., in 1903 £8,609 2s. 5d. This is a reduction of £709 15s. 6d. which we know was due to the importation of goods we could have manufactured.

Mining Machinery

Firm No. 147. Engineers.

867 We believe the policy adopted by the American manufacturers is to consign surplus stock to their direct representatives, without mentioning any minimum price for resale. If British makers dropped their prices to cost price we have no doubt the Americans would still undersell us. We can buy American rock drills f.o.b. New York for £14 10s. the ruling price in the United States being £70, and in England £35. The true "dumping ground" for American rock drills is the Transvaal, in spite of the 2½ per cent. preferential duty. While a mining company can purchase American rock drills for £14 10s. f.o.b. New York, we do not think purchases can be made from the London representatives at much less than £30, the price for home-made drills being a little over £30, £27 10s., less 5 per cent. is the lowest price we have had to compete with for retail business.

Firm No. 1,506. Manufacturers of Mining Machinery.

The desire to secure increased trade leads to naming low prices considering cost of transport, but we have no reliable information as to sales below actual cost. Normal cost including charges of administration in manufacture will be ignored in cases of close competition when work at place of manufacture is slack.

C. E. Hall, 58, Fosters Buildings, 22, High Street, Sheffield ; Manufacturing Mining Engineer.

America and Germany compete with us in mining machinery chiefly, crushers of various kinds and colliery machines, mostly for cleaning and preparing small coal for the market, not so much in selling below cost price as in more favourable terms, such as taking payment in by-products (liquidating the cost) extending over a number of years. 868

I never send any machinery on to the Continent now, but they can and do deliver similar machines here and I believe at lower prices than we do them at. I believe there is a lot of dumping in almost everything.

Wood-working Machinery

Barr, Thomson & Co., Ltd., West Netherton Street, Kilmarnock, N.B. ; Makers of Wood-Working Machinery.

We do not experience any foreign competition in respect to the stampings, &c., we make. We do experience competition from Germany for wood-working machinery, but this competition, when it emanates from England, is even keener.

Joseph Green & Nephew, Hunslet, Leeds ; General Engineers.

In the United States of America machines same as we manufacture are sold retail at a higher price than we retail them in our own country. Our opinion is that the foreign manufacturers receive Government assistance for export goods.

W. Bailey, 72 & 74, Mitcham Road, Croydon ; Machines for Woodworking, Milling, &c., Manufacturers.

869 Wood four cutters and moulding spindles are imported from America below our cost price. These American machines are made light with all the bearings run in with a so-called antifriction metal that will not stand the strain. If I made machines like these I should never get paid for them as they would always be giving trouble.

A. Ransome & Co., Ltd., Stanley Works, Newark-on-Trent ; Saw Mill Engineers, &c.

We experience foreign competition in almost every branch of our business, but particularly from American and German manufacturers in the cheaper description of joiners' machines and in large band saws for log sawing.

J. M. Herbert, 2, Warren Mews, Fitzroy Square, London, W. ; Engineer.

I have reduced prices to keep the orders and my men from going, but they have gone below my prices and I have to give up making altogether and send off hands. I think the idea is to obtain the run of these goods at low prices and then raise them after the English makers are compelled to give in.

Laundry Machinery

Thomas & Taylor, Ltd., 99, Fonthill Road, London, N. ; Works : Stockport ; Engineers.

Washing and ironing machines are imported from America at a price so low that the profit on their manufacture by us and sale at the price they are offered would not allow us to live.

870 **Foreign Competition at Home**

D. R. Robertson & Son, 369, High Street, Kirkcaldy, Fifeshire ; Machine Makers.

The Scotch pattern of wringing machines with rubber rollers has been copied and imported into Scotland from United States and Canada in great quantities under the cost we can produce them at.

Industrial Engineering.

Laundry Machinery —continued

Heriothill Rubber Co., Dunedin Street, Edinburgh ; Wringer and Rubber Manufacturers.

Wringers from America are sold from 10 per cent. to 15 per cent. below our cost price.

J. Fowler & Co., Gas Street, Bolton, Lancashire ; Manufcaturers and Wringing Machine Makers.

A few spindles are imported from France. They do not clash with us but they do, I believe, with large spindle makers. We are only in a very small way as spindle makers.

Brewers' Machinery, &c.

R. W. Andrews, 148–150, Pentonville Road, London, N. ; Brewers' Engineer.

Steam pumps I do not make now, but buy direct from America ; they are delivered into my shop at a price that I think is impossible for any English manufacturer to make them. If I made all the pumps I sell, I should have work for quite five or six more hands, and so far as I can see, the men I sell to (brewers) would not care a straw if they were called upon to pay more for their English-made pump.

I know that America makes steam pumps for her own market and has also our market at her mercy, therefore I think it must stand to reason that the country that can double our possible output must easily
871 be able with our free ports to sell under cost here and still make a good thing of it.

Firm No. **10,365.** Brewers' and Bottlers' Machinery Makers.

The proportion of foreign-made brewing and bottling machinery is very much on the increase. The reason seems to be found in the extra conservativeness of the brewers, who will not on their own account experiment, therefore keeping back English manufacturers, but who will support foreign manufacturers, because their novelties have been tested at home with the help of their own brewers, and whose apparatus is therefore in a more forward stage.

Cement and Brick Machinery

Firm No. **C 5,560.**

It is quite time something were done to prevent the foreigners underselling us in our own markets. Only this very week I have an inquiry for a large cement plant and have been informed I am in competition with the Germans, who, I have no doubt, would make a whole set of new patterns and put the machinery up at a loss to get a footing here for this class of work, the first in its way.

E. Newell & Co., Ltd., Misterton, Gainsborough ; Engineers, Millwrights and Ironfounders.

Hard steel balls are delivered in London at £16 15s. per ton, less 2½ per cent. in four-ton lots. Hard steel grinding plates with perforated plates, machined on faces, drilled, are delivered London at 33s. 6d.
872 per cwt. less 2½ per cent. These prices cannot be competed with profitably in England but I have no figures of the actual cost of their production.

W. Johnson & Sons, Leeds, Ltd., Armley, Leeds ; Engineers.

We do not suffer from foreign competition in any of our home trades except the cement machinery. This is by far the most important, if we received a fair proportion of the trade. In this department there is now one accepted type of machinery of which we are practically the only British makers. There are however two other firms doing a very small amount of trade in this machinery, but our output during the last few years has been probably over twenty times as much as both combined so that we can really be considered as the only British makers. Our competitors in this same machinery (there is no patent in it) are German and Danish firms. We have roughly estimated most of the trade done in this line during the past four years and we work it out to amount to something like £200,000, of which we have done about £15,000. The machinery is practically in every respect identical. We consider ours equal both in workmanship and material if not superior, and as far as the working results are concerned we have nothing to lose by a fair comparison. The cause of the trade having passed us is principally the question of price as our competitors being very large firms practically made up their minds to crush out all English competition and whenever they have heard that we were in competition with them we have had to face very much reduced tenders. We are sorry to say that in very many cases the opportunity has been given to our foreign com-
873 petitors to amend their prices after the first tenders have been received if ours were more favourable. We believe that 10 per cent. or 15 per cent. tax on foreign machinery of this type would practically bring the whole of the trade to us and our English competitors, and we are confident it would not result in any increase in price on our side but we should be able to actually supply at a less figure as the machinery is of such a character that if we received orders for ten machines at a time instead of one, which would then be the case, we could save very considerably indeed in the cost of manufacture.

John Jones & Son, Ltd., Britannia Foundry, Loughborough ; General Engineers.

The Americans have sent brick-making machinery into this country but have not been very successful up to the present. One or two Swiss and German makers are putting machines on the market but we do not think brick-makers in this country have readily taken to them.

Sewing Machines

Standard Tool Co., Ltd., Mearclough, Sowerby Bridge ; Tool Manufacturers.

We are told constantly our price for milling cutters is above the German price. With regard to the sewing-machine trade I understand that a Keighley firm were selling a German treadle machine for £3 10s. exactly similar to a Singer's machine which is retailed at £10, and that some of the Keighley sewing-machine makers had been to Berlin to get at the reason. They found this machine being sold in Berlin for about £8

874 **Kimball & Morton, Ltd., Bothwell Circus, Glasgow**; Manufacturers of Sewing Machines and India-Rubber Wringers, &c.

Sewing machines from United States of America and Germany are extensively sold in the United Kingdom, from 10 per cent. to 25 per cent. below cost. Wringers are also sold at 10 per cent. to 25 per cent. below cost, these being from the United States.

Smith, North & Priestland, Ellis Street, Holloway Head, Birmingham; Sewing Machine Manufacturers.

Sewing machines for the glove trades are imported from Germany below our cost price. A very large consignment of these machines (about 600 we were told) was sent over here, and sold at prices below the bare cost of material and workmanship. This stopped our sales for several years.

We believe and have been led to understand that many thousands of sewing machines for the glove trade, and for domestic purposes, are sent to England as surplus stock and are sold at almost any price to get rid of them, and to keep the foreign makers going.

Leather Machinery

Firm No. 4,629. Leather Machinery Manufacturers.

Leather machinery is our chief manufacture, and we experience foreign competition from Germany and the United States, especially the latter. These machines are imported below our cost of production, and some of the prices are less than the cost in the country of origin. We have been informed by our friends who have been in America that these machines are offered there at 10 per cent. lower prices for export than the same machines for sale in the American home market. 875

Sugar Machinery

Firm No. 505. Mechanical Engineers.

Germany sends cube-sugar machinery, and the United States hydro-extractors of certain sizes, similar to those made by us and under our cost price. From the fact that American machinery with which we compete in this country is sold here at from 50 per cent. to 60 per cent. lower prices than the same machines are sold for in the States, we conclude that the selling price in this country of these American goods is below the normal cost of production in the country of origin, but we have no exact information.

Miscellaneous

A. W. Paton & Co., 41, Reform Street, Dundee; Typewriter Factors and Merchants, and Manufacturers of Duplicators.

Typewriters are imported roughly at half cost to us by various American firms direct to branches which they have in this country. They will not sell to dealers except through these branches, and in some cases where dealers have imported direct they have been threatened with a lawsuit to interdict them against selling these companies' machines with the result that they have had to abandon the direct import. Duplicators are imported from the United States at from 10 per cent. to 15 per cent. below our cost price. 876

R. Simon, Phoenix Works, Vernon Road, Basford, Nottingham; Manufacturer of Grain Weighing Machines.

German competition is not serious, as although many German competitors, being better organised and having cheaper labour, can manufacture cheaper than I, the expenses and commissions or discounts they have to pay to obtain business here makes serious competition impossible. Drying machines for brewers' grains were first brought out in Germany. I held, and still hold the agency for the best of these and have sold a large number here and sent some to the Colonies. Similar machines are now being made in this country by others as well as by myself, and are supplanting the foreign made kind to a large extent, as the cost of production is less here. For example as I could not get certain trough castings quickly enough here I tried recently to get a quantity made in Düsseldorf. My friends there asked £15 each and could not do them for less, but I get them in Nottingham for £8 8s.

Bramley Engineering Co., Bramley, Leeds; Engineers.

Our particular trade is not hurt by what the foreigner sends in here so much as by our goods not being able to get into European countries. We may point out that the stone-working machinery we have seen which has been made in Germany, Belgium or France compared most unfavourably in strength, durability and finish with similar classes of machinery made in Great Britain. 877

Firm No. 1,537. Structural Engineers.

The foreign competition in our home trade is very little, and what little there was consisted of coal distillation plant made by a German firm, the order for which was obtained through a public tender, their price being lower than ours.

S. W. Wilkinson & Co., Clyde Street Works, Leicester; Mechanical Engineers.

We have heard that an American firm sold a number of tablet machines at a price which we believe they could not be made for in America. They have since raised the price to about the cost of making them in this country.

E. Newell & Co., Ltd., Misterton, Gainsborough; Engineers, Millwrights and Ironfounders.

We experience foreign competition in grinding machinery from German, French, and Copenhagen firms, ball mills, tube mills, gyratory crushers and the cast steel renewals for these machines.

878 **Firm No. 316.** Stone Breaking Machine Manufacturers, &c.

An entire absence of foreign import duties on the goods made by me would help but even then I should be handicapped by similar goods being imported here below our cost price and adverse competition from foreign countries in consequence of rates of wages and hours of labour.

James Oates, 33, Trinity Street, Huddersfield, Yorks; Manufacturers of Wallpaper Trimming Machines, &c.

We have no definite information, but having regard to the higher rate of wages paid in the United States to mechanics, should say these goods are sent here at little above cost; but the real point to us is this, viz.—the cost of producing these special articles (being all same pattern) depends largely on the quantity one can make, and the American firm having an unopposed field for sales of these in their own country (owing to a high tariff against us) plus a share of this country's sales, are thus enabled to cheapen cost of production, our cost, by lessened sales, being inversely affected.

Davidson & Co., Ltd., Sirocco Engineering Works, Belfast; Makers of Machinery for the Manufacture of Tea Leaf, &c.

We do not consider articles in competition with our manufactures are being sold in this country at less
879 than they can be bought in America and Germany, but they are sold in this country at practically the same
price as in America and Germany notwithstanding that freights have to be added. Foreign makers therefore
must be accepting in this country lower prices than in their home markets for these articles, as cost of freight
has in such cases to be deducted from sale price. Our patents give us an effective protection which prevents
our own special make of fans, &c., being imported and sold in competition against us, and have also enabled
us to export same even to America owing to their having much greater output, relative to size, than similar
apparatus of other design; which just enables us to pay the American import duty of 45 per cent. with only
a slight loss, which meantime we are incurring in order to get a sufficient extent of business established in the
States to warrant a manufactory being started there later on, where eventually (owing to the heavy import
duty) our specialities for the United States and Canada will have to be manufactured.

Firm No. 429. Machinists.

We are hardly manufacturers now, our trade in flour-producing machinery has been entirely cut away from us by importation from abroad. We can now only rank as a repairing shop.

The Finnieston Engineering Co., 167, Finnieston Street, Glasgow; General Engineers and Ship Repairers.

Galvanised steel ice moulds of various sizes are delivered in Aberdeen, Fraserburgh, London, Dundee,
and Carlisle from Germany and Belgium at from 7½ per cent. to 17½ per cent. under cost. The galvanised
880 moulds are now falling off in home competition owing to the marked inferiority of galvanising and finish.
The terned steel mould is still formidable—owing to the foreign sheets having only about 5 per cent. of tin
as against our 20 per cent. to 30 per cent. of tin mixed in the lead bath. (Terned steel is steel dipped in a bath
containing lead and tin.)

J. Hawley, Ltd., Derby Works, 21—27, Carruthers Street, Vauxhall Road, Liverpool; Engineers, Millwrights, &c.

Box-making machinery is imported from United States from 25 per cent. to 50 per cent. below our cost according to the demand for these machines. We have known a shipment of 20 machines being sent here and some sold at a fair figure and the remainder for whatever they would fetch.

S. H. Johnson & Co., Ltd., Engineering Works, Stratford, London, E.; Mechanical Engineers.

We have no means of knowing the prices at which English users of such machinery buy from foreign makers, but we do know that even with a minimum of profit the orders pass to the foreigners daily. If foreign imports could be stopped our business would be more than doubled, and quite £8,000 per annum extra wages would be available for the British workman.

G. Kent, 199 to 204a, High Holborn, London, W.C.; Manufacturer of Domestic Labour-Saving Machinery.

881 Ice safes and refrigerators are manufactured in America and Germany, the competition from the former country being keen and the price at which they are sold being often less than our cost price, which we attribute to the fact that in the first place the wood which forms the principal part in their raw manufacture is much more cheaply obtained in America, and secondly owing to the very large (protected) home consumption, the manufacture can be undertaken on so large a scale that the cost of production in all items of labour is very greatly reduced. The surplus from the home consumption is shipped to this country and distributed to the various retailers on the "sale or return" principle. The same remarks apply almost entirely to mincing, paring and mixing machines.

We have no direct information but from our knowledge of the English costs of manufacture the inference is very strong that after allowing for all possible reductions in cost due to cheapness of raw material and economies effected by manufacturing in large quantities, the prices at which the goods are sold in this country can be little if anything above the actual cost of manufacture in the country of origin.

Firm No. 400. Manufacturers of Safes, Locks and Fittings.

Judging from comparative prices of the material employed and knowledge of such piece-work prices as we pay, imported goods could not be sold in the country of origin at such prices as they are sometimes bought here by merchants.

(D) FOREIGN COMPETITION ABROAD

Foreign Competition Abroad 882

QUESTION 12 (FORM VIII.): *Have the trades similar to yours in Germany, the United States, Belgium or other foreign countries made any inroads on any markets, hitherto largely supplied from the United Kingdom, in any branch of business in which you are engaged? Give such particulars as you can.*

QUESTION 9 (FORM I.): *What is your experience in respect of foreign competition in the Colonies?*

In addition to the replies given below 146 firms make general complaint as to increasing foreign competition abroad in almost every branch of engineering. Foreign competition abroad is described as "very severe and very damaging" by one firm, another firm says "America and Germany are gradually cutting us out in many quarters." Others state "our export trade has entirely gone," "we have been entirely cut out from the Colonies," "dumping has practically ruined our trade in the Colonies," &c. There is almost universal complaint of very keen competition in South Africa especially from Germany and the United States in the electric and mining branches.

Fifteen firms state that foreign competition exists, but it is generally described by them as "not serious."

Thirty-two firms state that they have no knowledge of foreign competition, or that they have no complaint to make, which in some instances is due to the fact that their particular manufactures are protected.

Structural Engineering 883

HEAD, WRIGHTSON & CO., LTD., TEESDALE IRONWORKS, THORNABY-ON-TEES; Engineers and Bridge Builders, &c.

We have lost many large orders in recent years owing to the competition of foreign manufacturers. Formerly we supplied large quantities of structural steel and iron work to Brazil, Argentine, China and Japan which is now principally supplied by Germany and Belgium.

HEMINGWAYS, LTD., HAVERTON HILL, MIDDLESBROUGH; Bridge Builders and Makers of Roofs, Girders, &c.

We have frequently lost orders for work tendered for in close competition with Germany and the United States which have been booked by those countries at ruinously low prices.

THE ALNWICK FOUNDRY AND ENGINEERING CO., ALNWICK; Constructional Work Manufacturers, &c.

Foreign competition in the Colonies is the same as at home, but if anything the cutting is more acute, especially in South Africa, as the Americans, Belgians and Germans are assisted materially by cheap carriage.

RICHARDSON AND HEWETT, 101, LEADENHALL STREET, LONDON, E.C.; Dealers in Metals, Machinery and Hardware.

A great deal of the iron and steel made on the Continent, especially in Germany, is of excellent quality
and has been found by the natives of India to serve their purpose quite as well as the material formerly 884
obtained from Great Britain, while the price in many instances is much lower—in the case of steel joists,
for instance, about 20 per cent. Wide flats (bars with rolled edges) are not procurable in this country at
all over 18 inches wide, while on the Continent they are rolled up to 30 inches and over, we believe. This
means that in doing work for the Indian Government, who stipulate for the use of British materials only,
contractors have to use sheared plates and plane the edges at considerable expense and with much loss of
time, which is avoided where the engineer is allowed to use foreign material. On several occasions when
public tenders have been invited in India we have opened out material (rolled steel joists in particular)
at prices, ex ship at an Indian port, based upon the lowest possible continental f.o.b. rates, but have been
informed by our correspondents that their want of success in competing for the contracts was due to their
opponents being in a position to supply from stock (alleged to be of American manufacture) at rates under
our prices for the goods landed in India without reckoning any profit for our principals, and they have also
told us that a representative of an American firm offered, if they would throw one-third of their plant upon
the scrap heap, to supply them with new machinery of the latest patterns and to wait for payment until
sufficient money for the purpose had been saved by the improved methods it was proposed that they should
adopt. As our friends' works cover between 14 and 15 acres of ground and we have been in the habit of
supplying all their requirements in the way of renewals we naturally did not regard this proposal with favour
and although up to the present it has not been accepted, in view of the fact that machinery is admitted into
India free of duty we are apprehensive that in this branch of our business we may before long be supplanted 885
by the American suppliers.

FIRM NO. **10,095.** Dealers in Building Material.

Foreign traders are injuring our trade by disposing of their goods in our markets at a less price than they obtain for similar goods in their home markets. The following prices of the German Steel Union speak for themselves:—

	EXPORT PRICES.						HOME TRADE.		
	s.	d.		s.	d.		s.	d.	
Billets	73	0	to	75	0	f.o.b.	90	0	f.o.t. works.
Blooms	70	0	,,	72	0	,,	82	6	,,
Sheet bars	74	0	,,	76	0	,,	92	6	,,
Merchant bars	102	6	,,	105	0	,,	105	0	,,
Angles	102	6	,,	105	6	,,	105	0	,,
Ship plates	104	0	,,	106	0	,,	115	0	,,
Boiler plates	115	0	,,	120	0	,,	150	0	,,
Heavy rails	85	0	,,	90	0	,,	120	0	,,
Joists	85	0	,,	87	0	,,	105	0	f.o.t. Burbach.

Structural Engineering.—*continued*

886 FIRM No. **1,081.** Engineers, Ironbuilders, &c.

The Colonies prefer English work at even higher prices. Our work is better designed and stronger, without extra weight, which is very important in our class of work.

SOMERVAIL &. CO, DALMUIR, NR. GLASGOW; Bridge and Roof Builders.

Our experience is if the Colonies can buy one farthing cheaper from a foreigner they will do so.

FIRM No. **2,766.** Engineers, &c.

We have not yet directly met foreign competition in our colonial trade, but buildings have been erected where foreign rolled joists were used and a saving effected of £2 a ton.

FIRM No. **160.** Iron and Steel Bridge Builders.

Our experience in respect of foreign competition in the Colonies is that when important works are wanted and publicly advertised the foreigners are not hampered by the conditions of design and methods of inspection of materials imposed on the English manufacturers.

F. MORTON & CO., LTD., HAMILTON IRON WORKS, GARSTON, LIVERPOOL; Engineers and Manufacturers of Iron and Steel Girders, &c.

887 Our business in the foreign and colonial markets has been almost entirely lost except in the case of the structural work and fencing purchased through the Crown agents for the Colonies who, except in the case of the bridgework for the Uganda railway, have by their specification excluded foreign material.

SHELTON IRON, STEEL AND COAL CO., LTD., STOKE-ON-TRENT, STAFFS; Manufacturers of Steel Girders and Joists, &c.

In the Colonies such goods as we manufacture have not received sufficient protection to enable us to withstand the unfair competition of the United States, Germany and Belgium, who have sold their goods at considerably less prices than we could afford to do owing to their methods in many cases of exporting their surplus production, the protection of their home market ensuring them the maximum output and consequently the minimum cost of production.

FIRM No. **1,564.** Manufacturers of Steel Constructional Work, &c.

Nearly the whole of the Canadian trade has been done by United States, German and Belgian steel makers. In Australia, New Zealand and the Cape of Good Hope, during the last three years a considerable amount of business has been transferred from us to Belgian and German makers.

888 LANARKSHIRE STEEL CO., LTD., FLEMINGTON, MOTHERWELL, N.B.; Manufacturers of Steel and Sectional Material for Bridge Building, &c.

The United States, when they are not fully employed with the home trade, can capture our trade in Canada. Our trade with that country has recently practically ceased owing to this cause. Both the United States and Germany are actively in competition with us in all colonial markets and we do not get a fair share of the trade.

GLENGARNOCK IRON AND STEEL CO., LTD., 127, ST. VINCENT STREET, GLASGOW; Manufacturers of Joists, Girders, &c., in mild steel.

Foreign competition in the Colonies with Belgium and German makers is much the same as in the home market. They make a similar price f.o.b. Antwerp for Colonial markets as if they were sending to this country. Not only this, but as a rule they can command a more favourable freight owing to ports like Antwerp being free from all kinds of charges in the shape of dues, &c., which militate so much against shipment from British ports.

Electrical Engineering

THE GENERAL ELECTRIC CO., LTD., 71, QUEEN VICTORIA STREET, LONDON, E.C.

889 The English electrical manufacturers used to have the whole trade of Sydney and Melbourne. Germans and Americans have taken away much during the last six years. We used to hold the telephone contract for the Government of New South Wales. We lost it because a Berlin firm quoted about 5 per cent. cheaper. No consideration was given to the fact that ours was English make. (Why should they if English municipalities do the same?) Freights are cheaper from Germany to Sydney than from England. The effect of the adoption by the Colonies of German and American patterns, methods, and specifications is that these have become standards, and supplies for maintenance and extensions continue to pass to the original sources. In Canada the enormous advantage that the United States have secured in the adoption by Canada of their patterns and methods, combined with geographical advantages, operates in preventing a really large trade in British electrical manufactures there. We are fighting hard for Cape and Transvaal trade and have established branches both at Cape Town and Johannesburg. The slight advantage in the tariff is an assistance, but the Americans and Germans do a large share of the mining work, many groups being interested in German electrical factories. Should the Colonies adopt the metric system much of our trade would go altogether.

FIRM No. **1,527.** Engineers.

We have found that the Colonies use a vast amount of American and continental machinery and it is generally the lowest offer that secures the contract. We have the best of reasons for knowing that one of the Colonial Governments recently issued an inquiry for a large amount of electrical plant in which they actually specified the manufactures of Continental firms and thereby debarred British manufacturers from participating.

Firm No. **987.** Manufacturing Electrical Engineers. 890

The mere fact that foreigners are, by means of their tariffs, in a position to manufacture in much larger quantities than we are enables them to compete successfully in our colonial markets.

Firm No. **956.** Electrical and General Engineers.

Foreign competition in the electrical trade in the Colonies has been a most serious factor. The Americans have had until the past three years practically full possession of the Australian trade and have divided that of South Africa with the Germans. In Canada, which to a considerable extent makes electrical machinery for itself, the Americans have had the balance of the trade—a very large total—until recently.

Firm No. **1,396.** Manufacturers of Electrical Machinery.

In Australia the Americans and Germans are severe competitors, Americans particularly, and more so in the Colony of Victoria than elsewhere. This competition, largely the growth of the last five years, has aided to reduce prices to such a level that there is little profit to be made on the selling of electrical machinery at present. In New Zealand the Americans have been severe competitors during the last two years, again causing an all round reduction in prices. In South Africa the Americans have a large share of the orders for electrical machinery for the mines. The Germans also do a considerable business and we have to cut prices to compete. 891

Sandycroft Foundry Co., Ltd., Hawarden, nr. Chester; Electrical Machinery Manufacturers, &c.

In the Transvaal which has been the principal market for our manufactures for many years we now experience excessively keen competition with the German and American manufactures, more especially in gold mining machinery. This is especially marked in the case of forgings known as "shoes and dies" for gold stamp mills, in which until two or three years ago we had a valuable trade. This has latterly been almost lost to us through German competition notwithstanding large outlay on improved plant and every possible device for reducing costs. The Germans also have the advantage of sending their machinery out to South African ports at far cheaper freights than the English, which all tends to help them in this direction. The above remarks apply but in a less aggravated degree to the Australian Colonies, &c.

Firm No. **728.** Mechanical and Electrical Engineers.

The competition of foreign countries does not affect us adversely through their low wages, but the absence of Factory Acts and Trades Unions, and in the case of the United States their competition is assisted by the fact that they have a larger number of customers to cater for.

In many instances the United States and in a few Germany are offering poor low grade machines which find a sale, and in others a good quality of machine. These are sold in competition with British manufactures. Without this competition we should do a larger business. 892

Firm No. **1,584.** Engineers, &c.

Our foreign and colonial trade has decreased during 1899—1903 although there has been a slight revival in our colonial business during the last six months. In India and Egypt there is much competition from Germany and France.

Firm No. **304.** Engineers.

During the last twenty-five years markets have been actually closed against us that were open at that time. For example, we send practically nothing at the present moment to Melbourne and Ballarat, whereas prior to that date we exported quantities of miscellaneous goods. While English goods are kept out by adverse tariffs, American and German goods by some means find entrance, probably owing to overproduction and consequently cheap price.

Telegraph Construction and Maintenance Co., Ltd., 38, Old Broad Street, London, E.C.

We have lost in recent years the business we used to do with Germany, France, Italy and United States on account of the establishment in those countries of cable making works which are supported by their governments who stipulate that all State cables should be manufactured in their own country. 893

Firm No. **1,299.** Manufacturers of Electric Cables.

The competition in our Colonies is now keen especially from German and American manufacturers, and we believe that they could not quote so low in many cases but from the fact that their protective tariff enables them to make large profits on their home trade, the average profit on their total output being still fairly good even if they export part of their output at no profit or (in some cases where they wish to create a new market) even at a loss.

Cowans Ltd., Springfield Lane, Salford, Manchester; Makers of Electrical Accessory Apparatus.

In Australia, New Zealand and South Africa the Americans and Germans compete in the class of goods this company manufactures with such success that only occasional business can be secured.

Firm No. **1,479.** Electrical and Telegraph Engineers, &c.

Foreign competition in the Colonies in our opinion is bad, foreign manufacturers quoting below our cost price, which they are able to do through their employees working longer hours for less wages than in this country.

Foreign Competition Abroad

Marine Engineering

894 SIMPSON, STRICKLAND AND CO., LTD., DARTMOUTH, DEVON; Shipbuilders.

Germany and the United States are very serious competitors in Australia, and the United States in New Zealand and Canada. In Central Africa we have competition for light draft boats from German firms, also in South America. Wages and hours of labour presumably enable them to cut out British firms.

A. RUTHERFORD & CO., NEPTUNE WORKS, BRIDGE STREET, BIRKENHEAD; Shipbuilding Engineers and Boiler Makers.

In our small marine work foreign countries have made very large inroads in markets hitherto supplied by British makers, and we frequently lose good orders through the lower prices asked by foreign competitors.

FINNIESTON ENGINEERING CO., 167, FINNIESTON STREET, GLASGOW; Engineers and Ship Repairers.

We are badly handicapped by lower rates of freight given by English steamship owners to continental exporters of goods to our Colonies, more especially to South Africa. We are to a lesser degree handicapped in competing with Germany and Belgium against the "trade pools" presently existing in the respective trades there whereby they can export at a loss, which loss is made up at so much per ton from the pool. All things equal we can beat them in delivery and finish and quality of work. This fact is admitted quite frankly by our continental neighbours and opponents even after our higher rate of wages and lesser working hours are
895 taken into account.

DAY, SUMMERS & CO., LTD., NORTHAM IRON WORKS, SOUTHAMPTON; Engineers and Shipbuilders.

Our experience enables us only to speak with certainty as regards Canada from which country we have received many inquiries and where we find it impossible to compete against American machinery; but this is doubtless in part owing to their being able to deliver more cheaply than we can.

WALLSEND SLIPWAY AND ENGINEERING CO., LTD.; Marine Engineers.

In former years the number of vessels including engines and boilers built for Germany on the Tyne was greatly in excess of the present volume of this trade, which has been reduced owing to the increased facilities and appliances which German shipbuilders have established in recent years.

JOHN KIRKALDY, LTD., 101, LEADENHALL STREET, LONDON, E.C.; Marine Engineers.

Germany and Italy require that the machinery we are interested in must be made in those countries The German and Italian Governments give the greatest attention to the development of all industries calculated to increase the employment and prosperity of their subjects and influence orders being given to natives to the exclusion of foreigners so that where we sold large quantities we are now shut out. The United States by special Acts of Congress orders all materials used for arms and warships to be of native
896 production. This has very adversely affected us.

FIRM No. **743.** Shipbuilders, Engineers, &c.

In all Colonies and British Possessions we are severely handicapped and practically driven out of the market by German and American competition in commercial work, such as power launches, shallow draught steamers of all sorts, machinery, boilers, &c.

Mechanical Engineering.
Engines and Boilers

ROBEY & CO., LTD., GLOBE WORKS, LINCOLN; Engineers.

We suffer considerably from the competition of Germany and Austria-Hungary in our foreign trade owing to the uniformly lower price offered in neutral markets by our competitors in these countries. We attribute this to the fact that in both these countries the rate of wages is at least 15 per cent. lower than in England and the hours of labour are longer. In addition the low rate of transport on the State railways of those countries provides a practical bounty on all exported manufactures.

E. SCOTT, DAWSON HILL MILL, HEYWOOD; Manufacturer of Steam Engines, Gas Engines, &c.

I am largely interested in the engineering business as Chairman of a private limited concern employing 450 men. We are making various classes of engines up to 3,000 i.h.p., mill-wrighting, &c. Our severest
897 competition is in the Transvaal against American firms. I do not think the American tariff permits a single steam engine to enter America, not even a specially patented gas engine. On the other hand we give them free entry here and to all our Possessions, notably India. Does it seem wise or reasonable to open the Transvaal for them on the same terms as for ourselves after all that market has cost us in men, money and anxiety as well as the responsibility which will always rest upon us?

RANSOME AND MARSHALL, 67, TITHEBARN STREET, LIVERPOOL; Engineers and Exporters

We experience competition in governors on the Continent generally through direct traffic from United States owing to railway rates in Great Britain; in boilers on the Continent from United States, Germany and Belgium. Steam pumps for China are made in China. In Holland we have competition in hand pumps from United States and in gun-metal fittings from Germany and United States and made in the country, and in wrought iron tubes from Germany.

There are numbers of other small items now made in Switzerland, Germany, &c., that would not have had a chance had there been no trades unions on the present basis in England. As a country we have been giving away our coal and iron, enabling other countries to beat us, which they could not have done with a protective export duty. Follow Spain's position in this. When the duty upon port wine was increased she increased the export duty upon hematite which we required for our manufactures.

Hick, Hargreaves & Co., Ltd., Soho Iron Works, Bolton; General Engineers. 898

There has not been any great demand from the Colonies for the motive power plants of large size which are our speciality, with the exception of South Africa where we meet with active competition from American and Continental engineers but have so far been able to obtain a considerable share of the work.

Northern United Enginemen's Association, 3, St. Nicholas Buildings, Newcastle-on-Tyne.

In 90 per cent. of the claims made for reductions of wages, or in objecting to grant advances of wages, the employers refer to the severity of foreign competition, to the exclusion of British goods from other countries owing to prohibitive tariffs and the difficulties of meeting this competition owing to the restriction of output and the lack of up-to-date machinery, &c.

J. Fraser & Son, Ltd., Millwall Boiler Works, London, E.; Manufacturers of Steel Boilers, Storage Tanks, Steel Pipes.

Rivetted steel water pipes from Germany compete in Africa and Australia owing to lower prices and freight. In Africa Americans get a small number of boiler orders by taking the order for the entire plant but the quality is not satisfactory. In the Argentine Republic the lower freight helps the Americans but the quality of boilers they supply is against them. The following information has just come to hand
from some friends of ours at Baku where we have been trying to sell boilers. It will be noted that the import 899
duty of £14 a ton which amounts to over 50 per cent. of the value of the goods entirely keeps us out of that market. "The ordinary boiler in use is 52 h.p., 90 lbs. pressure, the price for the best made being Rs. 3,400, which works out at about Rs. 4 per pood. The duty on imported boilers is Rs. 2·10 per pood, to which must be added another 90 kopecs for freight and expenses *en route*, which, comparatively speaking, would leave a margin for Fraser and Sons of Rs. 1 per pood, *i.e.* £6 13s. 0d. per ton, or approximately £90 per boiler, a price at which I should think it is impossible for Frasers' to do business. The companies use only the Lancashire type of boiler, those recently purchased having spherical ends. The question of using tubular boilers, which cannot be purchased in Russia, has been gone into by the technical staff and it has been decided that although the tubular boiler is undoubtedly of greater practical utility, at the same time its superior qualities and adaptabilities are not commensurate with the considerable extra cost delivered at Baku."

In our line of business generally speaking the foreign manufacturers do not do such good work as the British manufacturers turn out, but the freights from this country are excessive and goods can be shipped at a lower rate from the Continent and from the United States to most colonial and foreign ports. The question of getting our freights as low as Continental and American ones is of great importance. Another very important point is that if we get a preferential tariff with our Colonies there must be some heavy penalty placed on merchants who falsely declare goods to be of British manufacture. The present arrange-
ments are not sufficiently stringent and the penalty for wrong declaration should be entire confiscation of 900
the goods, and a fine in addition.

Strong and Collings, Bermondsey Street, London, S.E.; Boilermakers, &c.

Years ago we used to supply girders, channel iron, &c., which are now purchased direct from Sweden, Germany and Belgium. We are also offered boiler tubes from Düsseldorf and elsewhere at larger discounts than we can get from Scotland.

Firm No. 135. Engines and Mill Gearing, &c.; Iron Castings.

Our experience with regard to the Colonies is that anything they can make for themselves they will and do make. With regard to India where we had formerly a good trade, the Americans, Germans and Belgians are our greatest competitors.

Locomotives, &c.

The Avonside Engine Co., Bristol; Locomotive Builders.

In Australasia and Japan we are moderately affected by foreign competition, and in Chili, Brazil and Spain seriously affected. We have found recently that in Australia a number of German locomotives have been sold in direct competition with ourselves. Our agent gives the number as 12 and value f.o.b. Europe about £10,000. The reason for these sales was dumping and they were possibly sold below actual cost price.
The best proof of this is found in the recent balance sheets published by various German engine works who 901
admit exporting at a loss. One firm's loss was said to be £100,000.

North British Locomotive Co., Ltd., 17, Victoria Street, Westminster; Locomotive Engineers.

In Canada, New South Wales, New Zealand, India, and at times in the Cape of Good Hope the competition from the United States and in India from Germany has been at times severe. The German makers in one case competed successfully with us in Canada. In Egypt the Belgian competition has been for some years extremely severe. We could give a striking example of the different scale of price asked by the continental manufacturers when tendering to their own railways for locomotives from that asked when tendering for Egypt or other foreign countries.

Firm No. 1,473. Manufacturers of Files, &c.

Foreign competition is greatly on the increase in our Colonies. German locomotives in India, American locomotives in India and Australia, have taken orders for buffers and springs from us which English makers would have given to us. In Victoria last year a German firm secured a large contract for springs at 1d. per spring less than our price. A preference of 5 per cent. would have given us the order.

Foreign Competition Abroad

Mechanical Engineering. *Locomotives, &c.—continued*

902 Firm No. **1,593.** Engineers.

The competition of the United States causes us to cut our prices very keen. Recently we had to quote a very keen price to get an order in Canada for which the American engineers were also tendering. We think that Germany and Belgium secure orders for small locomotives for Colonial and Indian estate work which used to come to this country.

Firm No. **884.** Engineers.

The Americans and Germans are making strenuous efforts to capture the trade in our Colonies and in heavy machinery it is becoming increasingly difficult to meet their competition. Their powers of production are much in excess of their own requirements and they are making great efforts to gain a footing in our various Colonies. Further they have special facilities from their respective Governments and with their own heavy tariffs they are protected in their own country.

Rolling Stock, &c.

Harrison and Camm, Ltd., Rotherham; Manufacturers of Railway Rolling Stock, &c.

During the last few years very large quantities of foreign railway wheels and axles have been delivered to India and some of our other Colonies.

Firm No. **1,436.** General Engineers.

903 We are informed by our Calcutta house that steel wagons for portable railway are imported from Germany at under the cost of manufacture there with Indian labour and at about 50 per cent. less than we can supply, although the cost of freight on them is very high, occasioned by the great measurement of the packages.

Firm No. **3,683.** Manufacturers of Railway and Colliery Wagons, &c.

Our colonial trade has come to almost a deadlock through the severe foreign competition. This applies more especially to South Africa where we have done business in rolling stock for the gold mines. The Germans now monopolise this trade and there is no hope for English manufacturers as the Germans have special railway rates and subsidised shipping facilities and can deliver at Delagoa Bay at prices that we cannot possibly compete with.

Saxby and Farmer, Ltd., Kilburn, N.W.; Manufacturers of Railway Signals and Safety Appliances.

We are experiencing foreign competition in India, Egypt and in the Colonies by Germany, Belgium and the United States. Wages are lower in the two first named than in Great Britain, and all three countries have a remunerative home trade and are therefore able to devote their surplus manufactures to competing with us in the Colonies, &c., whereas we are unable to compete with them in their own countries by reason of their protective tariffs; they also enjoy the advantage of lower freights and railway rates in their own countries. 904

Motors and Cycles

The Eagle Engineering and Motor Co., Ltd., Oakfield Road, Altrincham, Cheshire.

The English manufacturer meets the foreign competitor on level terms and although colonial trade is not very large it is healthy and increasing. In New Zealand if a finished motor car before being sent there is stripped of its wheels and its engine (thus leaving a day's work to be done by its purchaser) and these sent off in separate cases we are informed that no duty need be paid. A finished motor car complete and ready for the road must pay duty.

Dennis Bros., Ltd., Guildford, Surrey; Motor and Mechanical Engineers.

The Colonies favour French manufacture through their having had longer experience in motor building than ourselves. A preferential tariff benefits us and we suggest preferential tariff for Australia.

The Roots Oil Motor and Motor Car, Ltd., Chicheley Street, York Road, London, S.E.; Motor Car Makers.

There are many French and German motor cars in India and South Africa. By far the larger portion
of the trade in motor vehicles in Australia, New Zealand and Canada has been done by the United States.
The States prices are lower. Many cheap German oil engines are sent to Great Britain underselling the
905 British maker. This is particularly so in the British Colonies and India. Also a great many cheap American
launch engines are sold in this country and the Colonies. The same remarks apply to motor vehicles of all kinds
supplied by Germany, France, United States and Belgium. The number of cheap petrol cars sold in this
country made in the United States has recently much increased.

The Raleigh Cycle Co., Ltd., Nottingham.

We experience competition in cycles in France from United States; in Germany from Germany aided by its tariff; and in Australasia, Italy and Scandinavia from United States and Germany. With reference to foreign competition in the Colonies, we deem the most important thing to be to induce the Colonies to make the duties on their imports by the piece or weight and not *ad valorem* because most of our foreign competitors copy our work in a cheaper form with good outside finish but cheap inside work to undersell us and to get their goods in at low values. *Ad valorem* duties encourage fraudulent invoices.

C. Connah & Co., Queen Street, Rhyl; Cycle and Motor Manufacturers.

We used to supply Australia, United States, Canada and in fact nearly the whole world with cycles but the United States and in a smaller degree Germany have now taken from us most of the trade of the Colonies, and practically all in their own country.

LINTINE & CO., 46, GREAT CHARLES STREET, BIRMINGHAM; Cycle and Accessory Manufacturers. 906

German houses supply goods into this country and the Colonies at similar prices so that excepting machines we supply only in small quantities goods of foreign manufacture to our Colonies.

FIRM No. **355.** Cycle Manufactures.

Our Colonial friends much prefer well-known English-made cycles with a good name, even though costing a little more than foreign goods. Unfortunately the same tactics apply to the Colonial trade as to the English, large quantities of cheap rubbish, being the over-production of foreign countries, finding a market simply on price, which in the end does not turn out cheap to the purchaser owing to bad and cheap workmanship and faulty material.

JAMES RICKARD & CO., BRENTFORD, LONDON, W.; Cycle Manufacturers and Engineers.

Foreign competition in the Colonies is very bad. I do not think our own Colonies should put a duty on any of the Empire's products especially seeing that the Mother country has to protect them.

THE QUADRANT CYCLE CO., SHEEPCOTE STREET, BIRMINGHAM; Manufacturers of Motor and Ordinary Bicycles.

The protective tariff enabled the United States to deluge the British Colonies with cycles. Cycles sent from the United States to British Possessions in 1897 amounted to £340.558, with this effect:—Cycles sent by Gt. Britain to British Possessions in 1897 £742,197, and in 1899 £362,456, a decrease of £379,741. Gt. Britain sent to all foreign markets in 1892 £799,864, and in 1902 £234,215, a decrease to foreign markets of £565,649. On the other hand Gt. Britain sent to all British Possessions in 1892 £115,992, and in 1902 £483,822, an increase to colonial markets of £367,830. 907

EXPORTS OF CYCLES

	To Foreign Countries.	To Colonies.
1892	£799.864	£115,992
1893	891,759	141,637
1894	1,018,879	182,034
1895	1,149,695	236,725
1896	1,049,221	806,383
1897	688,123	742,197
1898	468,093	492,846
1899	299,652	362,456
1900	209,728	320,862
1901	203,484	373,928
1902	234.215	483,822

BIRMINGHAM SMALL ARMS CO., LTD., SMALL HEATH, BIRMINGHAM; Manufacturers of Cycle Components, &c.

In Australia, New Zealand, and South Africa, our business improves each year. Foreign cycle components are lower in price, but English designs and finish are gradually driving the foreigner out of the market in these goods.

JOHN MARSTON, LTD., PAUL STREET, WOLVERHAMPTON; Cycle Manufacturers. 908

We experience competition in bicycles in all foreign, home and colonial markets since 1896 from Germany and United States. The Colonies, especially Canada, have bought large quantities of American bicycles in the past and are likely to do so in the future.

Hydraulic Machinery

J. EVANS AND SONS, WOLVERHAMPTON; Hydraulic Engineers.

Germany, the United States and Belgium, the last by very unfair means, have made inroads on markets hitherto supplied by United Kingdom. We are almost daily in receipt of replies stating orders have passed us in favour of foreigners.

FIRM No. **1,587.** Cast Iron Flushing Cistern Makers, &c.

Our lines are plumbers' and engineers' brass goods, chiefly water and steam fittings, cast iron flushing cisterns. We do very little direct with the Colonies and should like to do more. Large quantities of brass steam valves have been imported from America. This cannot have improved matters for British manufacturers. We make comparatively few steam valves, and should have been glad to develop in that direction but for the fact that the prices obtainable are distinctly the reverse of tempting. Competition amongst the British manufacturers themselves is no doubt responsible for this in a great measure.

FIRM No. **126.** Maker of Hydraulic Engines for Organ Blowing, &c. 909

There is a preference for the lower-priced though commoner and, owing to oxidisation, less durable foreign material.

GLENFIELD AND KENNEDY, LTD., Kilmarnock; Hydraulic and Sanitary Engineers.

Germany competes in sluice valves, hydrants, &c., for waterworks in Holland, Norway, Sweden and Belgium. With India and our Crown Colonies this country does practically all the trade in our line. Australia manufactures to a considerable extent, specially New South Wales and Victoria. With Canada we have done a small business for over 20 years. In 1889—1893 it increased to about double, 1894—1898 it fell off to rather under the normal, 1899—1903 the average is rather above normal but in 1901 we did almost nothing. In 1903 we were nearly three times the normal. We suspect United States do the lion's share in Canada. With the new preferential tariffs we may do better.

FIRM No. **224.** Engineers.

Our export trade for the last 10 years has fallen considerably and business is 50 times more difficult to get. Buyers in our Colonies ordering British-made goods in London of the merchants generally do not get them. The merchants and shippers are no longer representative of British manufacturers.

Mechanical Engineering.
Hydraulic Machinery —continued

910 FIRM No. **401.** Manufacturers of all kinds of Machinery.

Our experience of foreign competition in the Colonies is practically the same as in this country excepting that in the Colonies there are many engineers from other countries who quickly specify that the machinery must be got from America, Germany, &c. (although in a great many cases the machinery in question and the catalogues issued by the firms are a direct copy of ours) and consequently we do not in many cases even receive an inquiry.

RANSOME AND MARSHALL, 67, TITHEBARN STREET, LIVERPOOL; Engineers and Exporters.

We make too good machines and are beaten by badly built ones. Foreigners also give long credit and of course where duties are levied we are simply nonplussed.

THWAITES BROS., LTD., THORNTON ROAD, BRADFORD; General Engineers.

Value for value our goods are preferred in India, Australia, and the Cape. In Canada the proximity of the United States, enabling correspondence and transport of goods to be so much easier and quicker must always have a prejudicial influence against English trade. The preferential duty levied on British goods is an unimportant factor in determining the purchase of plant as compared with the facilities given to the Canadian buyer by being neighbour to the United States.

911 FIRM No. **486.** Engineers' Agents.

Foreigners are quietly shutting us out of the Colonies. In another 20 years when it is too late we shall all be saying what a monstrous mistake it was to go on playing with honest but antiquated cards whilst the other players were using the modern sort.

FIRM No. **1,576.** Engineers.

We experience competition in the Colonies in steam pressure gauges from Germany; and in steam-pumps, steam and water valves, more especially brass valves of sizes ½ inch to 2½ inches in the poorer qualities, from United States. Much of this competition has been occasioned through large firms of German and American manufacturers opening offices and warehouses in London and the buyers here, home and colonial, often believe that the goods they sell are of British manufacture. We have known consulting engineers specify these valves in their contracts believing them to be of British manufacture. American competition in pumps and valves is very keen in South Africa, India and Australia. The American Pump Trust will consign goods on terms which few of us British manufacturers would accept. We are told by American friends that much of the trade of the Trusts is done at an actual loss.

Accessories

SYDNEY SMITH AND SONS, BASFORD, NOTTINGHAM; Brass Founders, Steam Gauge Manufacturers, &c.

912 We have keenly felt the serious inroads made by the United States and Germany, especially in Australian Colonies. Even if our prices drop and the quality of the goods rises there still remains a determination from Germany and the United States to capture the markets regardless of cost. Our firm has felt the favourable results of preference in South Africa and New Zealand. If Australia would give to manufacturers in our trade a preference of 10 per cent. it would give an impetus to the brass trade that would employ many skilled workmen who are now asking relief of the relieving officer or the workhouse. If Mr. Chamberlain's policy succeeds, which we are convinced it will at no distant date, and if a 2s. duty be placed upon foreign corn, there should be a distinct understanding that a financial preference should be given by the Colonies to all British manufactured goods imported from the mother country.

THE CASTLETON STEAM PACKING CO., BROADHEATH, NR. MANCHESTER; Manufacturers of Steam and Hydraulic Fibrous Packings.

We have very severe competition in Canada, Australia and South Africa from the United States and Germany. At the present time German manufacturers are putting our class of goods on the South African market at such prices that it is utterly impossible for us to secure a fair share of trade. We did a far larger trade in South Africa before the war, which we think is due to the fact that lately South Africa has been brought before the notice of other countries more than before the war occurred.

913 THE UNITED ASBESTOS CO., LTD., DOCK HOUSE, BILLITER STREET, LONDON, E.C.; Manufacturers of Asbestos Goods.

Germany and the United States in particular and in a smaller degree Italy, France and Belgium have made considerable inroads into the African, Australian and Indian markets and our exports to these markets would have been considerably greater but for such competition. Experience shows that the British Colonies are used by foreign competitors in the same way as is the English market. Where any preference is shown for goods of English make the foreign manufacturers overcome the difficulty by appointing agents resident in England who trade under English titles and pose as bona-fide manufacturers but import from the Continent or America. These goods are shipped from English ports and the Colonial importer is led to believe he is purchasing goods manufactured in this country.

Tubes

D. F. THOMSON & CO., 4, DUKE STREET, ALDGATE, LONDON, E.C.; Wrought Iron Tubes and Cast Iron Pipe Merchants.

There is keen competition in Australia from Germany and the United States, but the Australians stipulate for good quality, and we hold our own there. Before the war the United States had a very strong hold in South Africa, especially in the Transvaal where a tube factory of the United States secured a contract from the Rand mines for wrought iron tubes amounting to £60,000.

Firm No. 830. Manufacturers of Wrought Iron and Steel Tubes and Accessories. 914

In the Colonies the prices of German and United States competitors compel us to sell at prices below cost if we are to do business.

E. BENNIS & CO., LTD., DEANSGATE, LITTLE HULTON, BOLTON; Manufacturers of Patent Machine Stokers, Furnaces, &c. *Miscellaneous*

Manufactures similar to our own affect us in the country of their origin (especially Germany). The natural leaning of the foreigner to goods of his own manufacture must be considered. Since the King approached France we have secured contracts worth having there, a thing we were unable to do before. We can compete and get more work than we can do (and we are extending all the time) from South Africa, New Zealand, and India, and a little from Australia, but protection has ruined the business men there and they have no money to buy with.

Though I had three times a talk with the Chief Engineer of the Hamburg-Amerika Line, *re* the feed-water heater inquired for by them, I got this morning a letter saying that they had more convenient offers from the other side. It is the old story that they are obliged to take German articles, following a pressure from their Government.

G. CHRISTIE LTD., 197, BROOMLOAN ROAD, GOVAN, GLASGOW; Wire Drawers, &c., Manufacturers of Dynamo Brushes. 915

Competition is experienced in wire cloths for paper-making machines in Scandinavia from Germany. A very determined effort has been made by Germany these last two years to capture British markets but as the quality of the goods has been very poor or very variable the attempt has almost entirely failed.

NEWMAN, HENDER & CO., LTD., DYEHOUSE WORKS, NR. STROUD, GLOS.: Brass and Iron Founders.

The United States and Germany are our greatest competitors and we presume they are "dumping" their surplus stocks in the Colonies as far as the respective tariffs will admit, similar to what they are doing here. Our foreign competitors circumvent the Merchandise Marks Act to obtain rebate of protective duties in our Colonies and this considerably affects us.

In India there are several trades in which British manufacturers are being pressed out of the market or British trade being seriously crippled. (1) The bar iron trade is now nearly all in the hands of Belgian manufacturers. (2) Bolts and nuts trade nearly all taken by French and Belgian firms. (3) Cutlery and electro-plate trades almost totally taken from Sheffield, by Germany (4) Steel girders by Belgium and America. (5) Paper trade, gradually being taken by Austria. (6) Brass and copper tubes, rods, &c., now being taken by Italy. (7) Leather belting, steam and water fittings, files, &c., being much interfered with by American competition.

JOHN ROGERSON & CO., LTD., WOLSINGHAM, R.S.O., CO. DURHAM; Manufacturers of Castings and Forgings for Ships and Electric Dynamos. 916

Foreign competition in the Colonies is becoming keener year by year and the English, owing in a great measure to their lack of enterprise and conservative methods and insular prejudices, are not reaping the share of increased colonial trade that they might.

STEEL BARREL CO., LTD.; Manufacturers of Electrically-welded Steel Casks.

We have lost business in most European countries through German competition. Formerly we did a German business but the duties keep us out now that German makers are more largely employed than formerly as they can sell cheaper than they could do years ago in their own country and they can dump abroad. The United States do not affect Europe to any extent. Belgium does a great deal of harm.

Firm No. 347. Elevator Manufacturers, Builders, &c.

We visited the United States in 1902–3, and found that in nearly all the large factories they had made preparation and were storing up their manufactures for the purpose of delivering them straight over to South Africa in competition with English goods. In nearly every case where we have tendered for our class of goods in South Africa an American firm has obtained the order from cheapness of price. In the case of the 917 Cape Town Electric Light Works we tendered for a complete elevating and conveying plant for handling and raising the coal from their stores direct over the boilers for the purpose of automatically feeding their stokers. We designed our plant on the most efficient principle and as cheaply as we possibly could and our price was £2,988 which was a competitive price with six other firms. Judge of our surprise therefore when an American firm tendered a price of £1,596 and obtained the order. From experience we have had by sending two of our representatives from the works over to South Africa to travel the country on business lines we find that the Americans have more amalgamations and companies formed for the purpose of obtaining their orders and keeping their trade going. With regard to Canada we do not have any inquiries from them for our class of plant.

Firm No. 501. Gas and Water Engineers, &c.

Foreign competition in the Colonies with cast iron pipes is in some cases pretty severe, but is in many instances largely accounted for by the difference of freight. Assuming the cost of the goods to be the same or practically the same, delivered f.o.b. Glasgow and f.o.b. Antwerp, owing to the cheaper freights from the latter port caused by subsidies or otherwise to many of the Colonies, our goods are much dearer when landed there.

Mechanical Engineering.
Miscellaneous—continued

918 FIRM No. **10,075.** Manufacturers of Gas and Water Works Material, &c.

French, German and American goods of all sorts are supplied to our Australian customers at lower prices than we can buy and ship them from England, but this is generally due to foreign bounties. For instance, French cast iron pipes can be delivered in Sydney 20s. per ton cheaper than Scotch or English castings, owing to the bounties. The price of French pipes, f.o.b. Antwerp is the same as Scotch f.o.b. Glasgow.

THE ACETYLENE CORPORATION OF GREAT BRITAIN, LTD., 47, VICTORIA STREET, WESTMINSTER, LONDON.

The Colonies ought to be a better field for us than the home market. Up to now we have an even chance with all other countries and it is a matter of sentiment only which type is adopted. The British is undoubtedly the best and holds its own where no regard is given to price. If regard is given to price then we are doubtful whether we can compete. The products of United States firms are being pushed in the Colonies.

SCOTCH AND IRISH OXYGEN CO., LTD., ROSEHILL WORKS, POLMADIE, GLASGOW; Makers of Compressed Gases and Accessories.

919 We don't do much with the Colonies. We are unable to compete with continental suppliers owing to the fact that the cylinders for compressed gases used in this country are much heavier and made to more stringent regulations and therefore much more costly to produce; all our cylinders are made in accordance with the recommendations of the British Government Committee of 1896, and we cannot compete with the light continental cylinders.

FIRM No. **1,535.** Engineer.

At present it appears to be the fashion to purchase foreign machinery in preference to British. This is partly owing to cheapness, lightness and general lack of substantiality. This does not necessarily imply that foreign work is bad or defective but that customers will accept from foreign countries a much lighter class than they would accept from British makers. Our machines are expected to last a life-time, whereas foreign machinery is apparently considered good enough. We frequently have offers for our manufactures provided we supply our solidity at the foreign price. In certain branches of our business the foreigner has a great advantage owing to his own protected market which enables him to obtain considerable home experience, and he is thus able to create a good name for first-class solid work at reasonable prices. This accounts for certain high-class contracts for our Colonies and Indian Empire being placed abroad with first-class makers, ourselves and other English makers never having been approached although quite able to undertake the work. Even home contracts have been placed abroad whereas if these were placed in this country the experience gained would have been invaluable to the makers and the country generally.

920 FIRM No. **1,436.** General Engineers.

We have not experienced serious competition with foreign countries in our trade with the Colonies, but American cheap traction engines are sold to a considerable extent in the Colonies at prices we cannot touch and at less prices than the same engines are sold for in America. American and German manufacturers have secured great facilities for trade with our Colonies from the very low railway rates charged on goods for export and the low freights ruling in their shipping lines.

Industrial Engineering.
Machine Tools

J. BUTLER & CO., VICTORIA IRON WORKS, HALIFAX; Engineers and Manufacturers of Machine Tools.

We find American and German competition in Australia, Canada, New Zealand, South Africa and to a smaller extent in India. We have practically no trade with Canada, which is supplied by the States. In Australia our business is declining as large American companies now keep large stocks of almost every class of machine tools in Melbourne and Sydney. The same remark applies to South Africa.

THE J. C. NICHOLSON TOOL CO., CITY ROAD TOOL WORKS, NEWCASTLE-ON-TYNE; Manufacturers of Machine Tools.

921 We should do much more in our line with Canada, South Africa, Australia and New Zealand but United States and German manufacturers have got a strong hold of these markets. It will require large preferences to remedy this, especially in the case of Canada. 33⅓ per cent. is not sufficient. We should give Canada an inducement to take off 50 per cent. to 75 per cent. in our favour.

FIRM No. **630.** Machine Tool Manufacturers.

We have made very full comparison of American prices of files charged by the manufacturers in their home market with what they offer these same files here, on the Continent and in our Colonies. File orders formerly received in Sheffield from Australia, New Zealand, South Africa and the Continent of Europe are now bought largely at "dumped" prices from United States. Germany, Belgium and other foreign countries cater mainly for such a common article that they do not compete seriously with our goods. The Americans have practically taken our Australian and South African file trade with their "dumped" files. They are competing strongly on the Rand with British mining drill steel.

The following case illustrates a Belgian's practice of dumping. A friend of mine having machine tools made for him in Belgium and always manufacturing these in "lots," occasionally finds himself with a few on his hands which he would be glad to realise at a very small profit in order to get in the cash. One machine he usually sells in London at £108 to £112 f.o.b. He has however an arrangement with a merchant with showrooms and warehouses in Brussels and Paris who will always buy for stock at £80 or a few pounds over, which clears expenses and pays a small profit. The merchant agrees not to sell under £100 which keeps up the price to that extent just as a protected home country would.

POLLARD AND SHIPMAN, EAST PARK ROAD, NORTH EVINGTON, LEICESTER; Engineers, Machine Tools and Motor Parts. 922

In the Colonies our greatest competitors are United States for drilling machines, and France and Germany for motor car parts. The same competitors are also to the front in the home and foreign markets besides their own.

WHEATMAN AND SMITH, LTD., RUSSELL WORKS, SHEFFIELD; Manufacturers of Saws, Files, &c.

We are principally affected by the competition of other countries in foreign and Colonial markets not in the home market; e.g., America sends circular saws to New Zealand and Australia. Germany sends mill saw webs to Norway, Sweden and Russia. Sweden supplies its own requirements for circular and band saws and also partly supplies the requirements of Norway and Finland and Russia. America, France, and Switzerland compete with us in all markets with their surplus output of files. We lose the trade in each case.

Agricultural Machinery, &c.

JOHN BAKER, FALCON WORKS, WISBECH, CAMBRIDGESHIRE; Manufacturers of Corn and Seed Separating Machines.

Machines similar to our manufacture are not imported into this country extensively, but they are made in all countries from our patterns and sold cheap in all foreign markets which reduces our sales 50 per cent. annually. 923

G. HATHAWAY, CHIPPENHAM; Dairy Machinery Manufacturer.

We have to compete with the American and German especially in South Africa but they cannot make stuff to stand the climate like we can and they are easily beaten in the long run. We could, with a preference, wipe the floor with any foreigners.

ROBEY & CO., LTD., GLOBE WORKS, LINCOLN; Engineers.

America competes in the Transvaal in mining machinery, and in the Argentine in portable engines and thrashing machines. Germany competes in Russia; and Germany and Austria-Hungary compete in their own countries in portable engines and thrashing machines. The competition of the United States of America and Germany in our Colonies is increasingly severe. Especially is this felt in South Africa, where our foreign competitors in addition to under-quoting almost invariably grant a rebate of 2½ per cent. to counteract the preferential duty of 2½ per cent. in favour of British goods. In most of our Colonies British goods are undersold by American and German manufactures.

FIRM No. 1,324. Agricultural Implement Manufacturer and Agent. 924

The competition in the Colonies is the same as at home. The British workman is the trouble and will not let us compete. Put other countries on the same footing as regards workmen and their restrictions and hours and pay as we have, and tariff will not prevent us then from competing.

FIRM No. 884. Engineers.

Germany, the United States and Austro-Hungary have made considerable inroads. In Germany since 1860 we have done a large and until recent years an increasing business in portable and other steam engines, thrashing machines, &c. The facilities for transport given by the German Government railways coupled with their protective tariff enable the German manufacturers to compete with us, not only in their own country but (aided by above transport facilities) also in France, Holland, Belgium, Denmark, Scandinavia and Russia, extending even to Siberia. The large profit in their own country has enabled them to supply to these markets at very low competing prices. These remarks apply also to a limited extent to our Colonies and to some extent to South America. The English fixed engine trade in Germany, which at one time was one of some proportions, has entirely ceased in consequence of the duties and cost of transport. In Austria-Hungary the same conditions apply as in Germany with the addition that the Hungarian Government has become a large manufacturer of portable engines and thrashing machines, supplying to a large extent the demands of that country which were for over thirty years entirely in the hands of British 925 manufacturers. The Government has also given facilities and assistance to native manufacturers as well as from time to time increasing the duties from 8 per cent. to over 20 per cent., and is now considering a further rise to nearly 35 per cent. This if carried into effect will make trade in that country prohibitive. Great Britain as one of the largest importers of Austro-Hungarian flour and grain (40 per cent. of the finer types of flour) and other goods could by retaliation reduce the duties to enable the British manufacturer as heretofore to do some of this class of business. The Government in Austria-Hungary delivers the products from its own factory, and also the native manufacturer's goods, free to the frontier for export. Austria-Hungary also exports largely to Russia and other continental markets. The facilities and duties in their own country and the bounties they receive for export enable foreign makers to so compete with British manufacturers. With regard to the United States a duty of 45 per cent. prevents us sending machinery, and with the advantage of this 45 per cent. they are enabled to compete with us in engines and thrashing machines in Denmark, Sweden and several countries on the continent but their competition there has not in our opinion made successful headway against British productions although supplied at very low prices. In South America, in the large corn-growing districts, they do a considerable business in thrashing machinery at low prices, in fact both that continent and the Continent of Europe appear to be dumping grounds for American thrashing machinery, but in South America they have made some headway, also a little in the Australian Colonies at extremely low prices.

Industrial Engineering.
Agricultural Machinery, &c.—continued

926 Firm No. **994.** Agricultural Engineers, &c.

Between 1880 and 1890 we exported a large quantity ot small ploughs and cultivators to the Cape. This trade has almost entirely dropped off in consequence of American competition. Before Russia imposed a tariff on agricultural machinery we had a good trade there for horse hoes, &c., now in consequence of the prohibitive tariff we do nothing at all. The trade in corn mills to Austria and Germany and dairy machinery to France has been lost for the same reason.

Firm No. **845.** General and Agricultural Engineers.

The worst competition we have experienced in recent years in the Colonies is due to the Repatriation Authorities having, we understand, distributed in South Africa over 12,000 American and German ploughs, thereby not only supplying present demands but creating a permanent trade for those two countries.

Firm No. **546.** Engineers and Iron Founders.

We recently tried to open up a connection in Australia and exported a small thresher. Our agents reported :—" We have already had one sample machine from America which gave our customers satisfaction and which was so much lower in price than machines of similar capacity made by you that we confess at present we do not expect to be able to send you any orders."

927 Firm No. **764.** Engineers.

Germany sends ploughs largely to South America and South Africa. United States and Canadian ploughs, harrows, cultivators, harvesting machines and horserakes compete not only in the United Kingdom, but in Australia, South Africa and South America. Germany is also supplying forage presses in France and North Africa and our sales of these in Germany have ceased. Competition in the Colonies is similar to that experienced in the home trade. In South Africa the German plough makers are making efforts. One very cheap pattern of plough for Kaffir use is sold in large numbers by American makers at a price far below our cost, and several of the United States Manufacturing companies of this particular plough have therefore gone into liquidation. British steamer freights are said to have unduly favoured American shippers to the Cape. In Australasia the competition of local plough makers is very severe, with their advantages of proximity to the market.

Mining Machinery

The Hardy Patent Pick Co., Ltd., Heeley, Sheffield ; Manufacturers of Mining Tools.

Americans and Germans (the former particularly) are able to and do sell their production in the colonies at much lower rates than they obtain in their own countries and at rates that make it impossible for us to sell at a reasonable profit. Since Canada gave us a preference our trade in this country has materially increased.

Wallis and Steevens, Ltd., North Hants Iron Works, Basingstoke ; Engineers.

928 Germany competes in steel mining trucks in South Africa, portable steam engines in Germany and threshing machines in Austria. The last named trade is lost to us owing to the Austrian import tariff. We used to export a considerable number of steel mining trucks to South Africa, at one time some 1,000 per year. Latterly, however, German competition has been very keen and our agents there cannot compete in price owing to the German trucks being sold below the price we can manufacture and deliver at. At present owing doubtless in part to depression of trade the sales have dropped to about 50 per year. The chief object of the buyers of these mining trucks now seems to be to get the lowest priced article possible and they seem to be able to purchase at figures with which we are unable to compete.

W. G. Allen and Sons, Princes End, Tipton ; Engineers, &c.

In South Africa a large proportion of the mining trucks used in the mines are of German manufacture and it seems to us grossly unfair that we should have to pay the cost of the war to find a market for the Germans.

R. White and Sons, Widnes, Lancashire ; Railway Engineers, &c.

We are being undersold in the bulk of our Colonies, not only by cheap "dumped" material, but also
by the fact that foreign-owned ships are frequently able to transport materials to the Colonies at less cost than
the English shipowners can. We understand that a very large proportion of mining machinery and tramway
929 material now in use in South Africa comes from foreign countries.

Firm No. **1,506.** Manufacturers of Mining Machinery.

Foreign competition is very active and injurious with a frequent advantage in bounty and encouraged by low freight rates. In Canada and South Africa the small preferences to English goods help slightly but not very materially in view of foreign tendency to low prices to secure trade. United States and Germany have made large inroads into Australia and South Africa in branches of business engaged in by us. We ourselves have taken advantage of the fact by acting as agents both in Transvaal and West Australia for American machines of special designs or materials of special quality which are preferred in the mining business to English patterns or quality. This competition is increasing and affects our own manufactures. The American mining machinery was some years ago so superior to the English that South African and Australian trade was largely supplied from United States. Our company was formed to buy out one of the best known American firms and to make exactly the same class of work in England and for some years owned also the American works, which last have been since sold to a purely American Company. The English standard of our special machinery is quite up to the American standard and competition is important only from low prices quoted to secure foreign trade for the American makers. As far as our business is concerned we are interested on both sides. As makers of certain machinery we are at a disadvantage from free entry of American and German machinery

930 into British possessions. As agents for American makers of other machinery we benefit in the freedom of trade.

Cyanide Plant Supply Co., 1, Broad Street Place, London, E.C. Gold Mining Engineers.

Shortly before the war tenders were called for a large cyanide plant for South Africa. The plant was estimated to cost £40,000. It was found however that no British company could possibly face American competition in view of the low price of raw material then prevalent in the United States. An offer was made to supply all the steel required at such a low price as would enable us to put in a quotation some thousands of pounds below the lowest American price. The effect of the formation of the American steel trust has thus been to enable us to secure raw material at such a price as effectively puts the American manufacturer outside of competition. The chief competition now is with Belgium and Germany. So long however as we are able to import the surplus Belgium and German production free of duty, we are in a most effective position to compete with foreign manufacture and indeed have recently secured sufficient orders from South Africa to keep us fully going for some time to come. On the other hand, the dumping of surplus American and continental production in this country tends to injure home producers of the raw or rolled material. This could be met effectively without in any way interfering with our ability to capture the South African market by placing on imported steel a duty, to be refunded on export in the shape of a rebate. This would thus keep us in the best possible position for securing the advantage of foreign low-priced material without lowering home prices for home consumption ; but it must be remembered that unless we can obtain the raw material, either foreign or surplus home production, at the necessary cheap rates, the work will not come to this country at 931
all. As it is, by the use of imported raw material we are enabled to pay wages to a considerable amount on contracts which otherwise would never have come to this country.

Firm No. **C 391.** Mining Engineers.

One of our English competitors is offering English-made drills duty paid in the Eastern States of United States for £30, with the most promising results. The usual price is £70 in the United States. Surely it would be better for British makers to supply the drills used in England while the Americans make their home trade their own than for England to be supplied from the States and *vice versa* ? We fear that the United States Government will increase the duty on rock drills if our English competitor's move succeeds, so that we are at present taking no action beyond opening negotiations for the manufacture of our drills in America.

C. E. Hall, 58, Foster's Buildings, Sheffield ; Manufacturer of Mining and Crushing Machinery.

I used to send my crushers to South Africa, India, Australia, and New Zealand, but the German stuff is offered much cheaper and our cash terms too are against us. There is lasting quality in Sheffield goods but the colonial trader's great question is price and he will sell that which goes easiest. Our trade is now practically gone except to old customers.

932 R. Stephens & Son, Carn Brea, Cornwall ; Manufacturers of Rock Drills.

A few years ago the price of a rock drill complete in the Transvaal was £90, to-day the same article can be purchased owing to American competition for £43. This competition also applies but in a lesser degree to Australia.

Firm No. **147.** Engineers.

In Australia British-made goods have a preference over those made outside the Empire. In the Transvaal before the war the American-made article was favoured owing perhaps to the prevalence of the American engineer. We notice little difference since the country has joined the Empire but it may come later. Competition is very keen on the Witwatersrand district. The American maker of rock drills is selling them in Johannesburg at £16 10s. which undoubtedly represents a loss to him as the price in the United States is £70. The 2½ per cent. preference to British-made goods in the Transvaal, small as it seems, is in reality less, for what is to prevent the manufacturers invoicing to their branches in Johannesburg at less than the market price ? Less than a year ago we were informed by a well-known firm of machine-tool manufacturers in Coventry that just before our call on them a German company had placed a conditional order for plant to make in Germany exact copies of a well-known British rock drill to export to Johannesburg.

933 J. Davis and Son, Derby, Ltd., All Saints Works, Derby ; Manufacturers of Mining Instruments, &c.

Since a preferential tariff on goods of English manufacture has been established our trade with the Dominion of Canada has greatly increased. We have a stock of our manufactures in Johannesburg and are experiencing competition in the Transvaal in American and German made mining instruments and apparatus.

Textile Machinery

Geo. Thomas & Co., 60, Deansgate, Manchester ; Engineers and Exporters.

There has certainly been a change. Germans, French, Belgians, &c., have made great progress in supplying their own wants. We attribute this to thrift, organisation, technical education and well-equipped works and of course protective tariffs. We have no personal experience of foreign competition in the Colonies in our branch of business, although we know that lots of German and continental specialities in the engineering branches are increasingly shipped out, and many of these are entered as imports to England and again re-shipped as exports from England but the tendency is of course for foreigners to ship to our Colonies direct. The "made in Germany" law was a great mistake ; it advertised the foreigner, the German especially. In those days Parliament wrongly concluded foreigners only made secondary stuff. Our export trade becomes more difficult every year in our special branches of machinery—accessories of all descriptions for the textile trades (spinning and weaving mills) and engineering works—owing to the fact that foreigners (Germans, French, Austrians, &c.) make many of their own machines and sundries, tools, &c. We may

Foreign Competition Abroad

Industrial Engineering. *Textile Machinery —continued*

934 instance especially power looms and preparation for weaving mills, machinery for bleaching, dyeing, calico printing and finishing.

James Greaves & Co., 13, Ridgefield, Manchester; Engineers.

The proportion obtained abroad and exported direct to India is constantly increasing. In former years iron and steel bars were made in England and Scotland, now hardly any British make go to India, we have to send Belgian, German and American make on account of cheapness. Iron and steel sheets of British make have been declining steadily and now the Lancashire trade has entirely ceased and only a little goes from Glasgow. The proportion of Continental copper and yellow metal is also increasing and this is a comparatively new competition. The American chemical manufacturers have just begun shipping bi-carbonate of soda to Bombay. The Americans export steel hoops and steel bars to India when trade is not sufficient in their own country and then it is a case of dumping. At present they are selling steel hoops at £1 5s. 0d. per ton less than British, and steel bars at 3s. 9d. to 5s. less than German prices.

Firm No. **1,067.** General Engineers.

In Canada the Americans seem to have done a fair amount of business in our class of machinery
and wire but we now seem to be getting more business owing to the preferential tariff in our favour. In
935 India the Americans appear to be doing a good business in cotton gins and some other cleaning machinery
for wool. Americans and Germans are exporting a considerable amount of turned shafting and accessories
to South Africa.

Underwriting Bureau Ltd., Rooms 566 and 567, 11, Queen Victoria Street, London, E.C.; Commission Agents.

In executing indents for India British manufacturers cannot compete with Germany in respect of machinery such as rice shaving and milling machinery, ice-making machines, fibre mills and pressing machinery, bi-carbonate of soda, calcium carbide and other chemicals.

Printing and Paper Machinery

W. E. Cook, Turnagain Lane, London, E.C.; Printers' Furnisher.

The machinery such as I used to supply to the Colonies is now handled by German and American
houses almost exclusively. Printing machinery generally from America, of high class and capable of
greater production or in strength or design superior to English, was first noticeable about 1895, and in card
box-making machinery English houses have long been behind the German manufacturers, while later an
American firm has acquired nearly all the business, such manufacturers as the leading soap and chocolate
houses obtaining their whole plant from them. Bookbinding machinery is still to be got of English make
but with one exception is all antiquated with the result the Germans skim the cream. Wire-stitching machines
936 are used by every printer, bookbinder, card box maker and by numbers of those engaged in textile trades,
but not a single machine is made in this country.

Payne and Sons, Atlas Works, Otley, Yorks; Printers' Engineers.

Americans have taken the trade we originally had in Canada. We have had slight competition in Australia from the Americans but have successfully held our own against them. In Australia, New Zealand, India and South Africa where we meet foreign competition on equal terms our trade increases year by year. Our machinery should sell in Canada with the present preference but our agents have lost all hold on the market and it will be necessary to start again. In New Zealand, South Africa and Australia a very slight duty on foreign machinery would give British manufacturers all the trade.

Linotype and Machinery, Ltd., 188, Fleet Street, London, E.C.; Engineers.

British Colonies are inclined to purchase British-made printing machinery instead of that manufactured by the foreigner even sometimes where the price of the British machine is slightly higher than that offered them by the foreigner. But this is not universal in the printing trade, as 20 per cent. of the printing machinery now supplied to Australia and New Zealand is imported from America and Germany, and this percentage is likely to grow.

937 James Bertram and Son, Ltd., Leith Walk Foundry, Edinburgh; Manufacturers of Machinery for Paper Mills and India Rubber Factories.

In all our Colonies except Canada there is little if any foreign competition in our special machinery. Canada owing to its proximity to the United States finds it more convenient to buy our class of machinery there, but this may change and we do not think the tariff of Canada has been the difficulty.

Bertram's, Ltd., St. Katherine's Works, Sciennes, Edinburgh; Makers of Paper Mill Machinery, &c.

In Canada we find that it is almost impossible to get orders owing to the proximity of the United States saving time in communication by letter, personal visits, and delivery of goods. In India we have supplied about seven-eighths of the entire paper mill machinery and have not found foreign competition affecting us there. We have also supplied a large amount of paper mill machinery to Hong Kong, Australia and New Zealand and have not experienced foreign competition in these places. As to the future of Japanese trade from our experience we think that it will increase and that America will be favoured in paper mill machinery, from its proximity and young Japanese learning the trade there. This applies also to other machinery in some degree. Britain will get a considerable show of the business if British makers are well represented in Japan. Continental competition need not be much feared though it is ever present for cheaper and lighter designs.

Firm No. **C 2,192.** Manufacturers of Machinery for Paper Mills. 938

We have still competition in Canada but cannot say that it is increasing, but rather if anything decreasing, owing we think to the preferential tariff granted to the United Kingdom by Canada. As regards India we used to have no foreign competition but the firms with whom we used to do a good business are now getting the most of their wires from Germany.

Firm No. **1,198.** Engineers.

We only compete with the Americans in Canada and the Germans in Norway and Sweden with paper machinery. Indirectly we are much affected by the import of paper, &c., between £4,000,000 and £5,000,000 worth being imported annually free. With a moderate protection many more paper mills would be required giving much work both to engineers and the many other trades depending on them.

Firm No. **828.** Paper Machine Wire Makers.

Trades similar to ours in Germany and France have made considerable inroads on the markets in Norway and Sweden where formerly we did a good business but now do little or nothing. Paper machine wires are sold in Canada of German and French manufacture at a lower price than we can sell at. In India foreign competition is increasing and paper mills there are beginning to use foreign wires on account of their lower price.

Woodworking Machinery

939 J. M. Herbert, 2, Warren Mews, Fitzroy Square, London, W.; Engineer.

I do not deal direct although Australian and New Zealand orders keep my works going, but re-exported foreign made goods are sold as English in the Colonies. My customers are constantly saying that trade is lost in foreign countries and that no more work will be required of me in that line.

A. Ransome & Co., Ltd., Stanley Works, Newark-on-Trent; Saw Mill Engineers, &c.

The cheap German and American machines which are dumped in our Colonies have practically destroyed colonial trade excepting in the cases of the orders for the railway companies and government orders through the various Crown agents.

Joseph Green and Nephew, Hunslet, Leeds; General Engineers.

Germany and United States are dumping machines (many of an inferior quality) into the Colonies at such a price as to put our trade out of the running; having accomplished this and having thus secured the market up go their prices. Foreign consuls assist their country manufacturers in every available manner to introduce their goods.

Miscellaneous

940 Firm No. **505.** Sugar Machinery Manufacturers, &c.

We think we are holding our own in the Colonies so far as regards the sugar machinery section of our business but the competition with the foreigner is very keen in our cream separator business.

Harvey Engineering Co., Ltd., Scotland Street Engine Works, Glasgow; Engineers.

Sugar making machinery is supplied to all tropical countries in all parts of the world by Holland, Germany, Austria and America. We have to face a keen competition from these countries in our manufactures and, further, America puts a duty of 45 per cent. on all sugar machinery from this country going into America or American colonies, which virtually closes the doors whilst our Colonies are free to her machinery. In Porto Rico we had a very large trade which had been built up during a period of 50 years. This has been entirely lost to us by the American annexation of the island and their placing a duty of 45 per cent. against sugar machinery from this country. We did also a large business with Java which has now been largely cut into by Belgian, Holland and German makers, owing to the longer hours and lower wages of workmen in these countries. In Cuba we have a large connection but America secured a preference treaty in their favour. Our Government were not looking to the interests of trade in this country when they allowed our trade in Porto Rico to be taken from us. Porto Rico might have been annexed by America, but the duties should have remained as heretofore.

941 Firm No. **4,029.** Leather Machinery Manufacturers.

America is rushing goods into the Colonies at as low a rate as they are sending here. A catalogue of American manufacturers gives rates of freights lower than ours to the same places although they go considerably further by land and water. We think there should be some uniformity of port charges and a reduction in same. We are finding it extremely difficult to do business, but we are holding on hoping for better times and better conditions.

S. H. Johnson & Co., Ltd., Engineering Works, Stratford, London, E.; Mechanical Engineers.

Foreign competition in the Colonies in our goods is excessively keen; we find it hard to do business and the larger portion goes to Germany which she is enabled to hold through cheaper labour and longer hours. There should be a duty of 10 per cent. to 20 per cent. on German machinery to make the conditions of production in this country and in Germany equal as regards the supply of such goods to the Colonies. The principal Colonies where we feel the pinch are West Australia and Victoria. We have held our business in the Transvaal but are now beginning to feel German competition there; we have all paid heavily in the cost of the Transvaal war for this market for our manufactures, why give it away to the Germans?

942 **Foreign Competition Abroad**

Industrial Engineering. *Miscellaneous—continued*

Bramley Engineering Co., Bramley, Leeds; Engineers.

There is not much foreign competition at home in our line, but in sending goods to the Colonies we have met with strong competition particularly from the Americans and Germans. The most annoying part to the British trader is that he makes the best article.

J. Hawley, Ltd., Derby Works, 21–27, Carruthers Street, Vauxhall Road, Liverpool; Engineers, Millwrights, &c.

In box-making machinery we could export to the Colonies considerably more if not for American manufactured goods and in some instances German manufactures.

W. Johnson and Sons, Leeds, Ltd., Armley, Leeds; Engineers.

In cement machinery we believe the same objection is found as in England. Continental firms are able to produce and send goods out at a cheaper rate than we owing to their many advantages in the way of cost of labour, &c., and to the fact of their being able to produce a much larger output. Our trade in cement machinery has disappeared entirely in Cape Colony, India, Australia and in fact all our Colonies and Possessions. Our principal speciality is brick-making machinery and we have very little foreign competition in England but considerable in the Colonies, but in spite of this we have done well in one Colony, South Africa, owing to the boom.

943 **W. and T. Avery, Ltd., Soho Foundry, Smethwick, Birmingham**; Weighing Machinists.

In Canada we have been able to supply automatic grain and coal weighing machines against United States makers by reason of the preferential tariff, but an American firm is now erecting a works in Canada. In Australasia, South Africa, and India, the United States competes at dumping prices and Germany does the same in South Africa.

A. A. Tattersall, Mill Hill Emery Works, Blackburn; Emery Wheel and Emery Machine Maker

We can beat other countries in the Colonies. Our goods, being stronger and more durable and the same or little more in price, are preferred. I suggest preferential tariffs with our Colonies and tax the foreigner the same amount he taxes us.

J. and A. McFarlane Ltd., Spring Bank Street, Glasgow; Manufacturers of Laundry Machines, &c.

Germany and the United States have made serious inroads especially into the Australian and South African markets in almost all kinds of laundry, dairy and kitchen articles. America has been our greatest competitor and has in past years taken the large part of the wringer and wood ware trade. Possibly the special concessions to the mother country granted by Canada, South Africa and New Zealand may be sufficient to turn the scale in our favour in some things. Most of the Colonies have done remarkably well already 944 but if further concessions to Britain can be obtained they would increase our chance of business; while on the other hand if the home manufacturer were placed on a fair basis he would be in a better position to compete both for the home and colonial trade.

Thomas and Taylor, Ltd., 99, Fonthill Road, London, N.; Works, Stockport; Engineers.

Both in the laundry and dairy machinery business Germany, the United States and Belgium have captured markets in the British Isles, Colonies, Spain, Sweden, Russia, in fact all over the world. Years ago we sent churns by the dozen to Spain and Sweden, now we hardly send one per year to them. When we saw the prices at which the above articles were being imported we knew our trade would decline.

Firm No. 359. Laundry Machine Manufacturers.

The United States has competed somewhat seriously in the home and colonial trades in laundry machinery. Australian Colonies are being over-run with American and German goods, with articles lighter and cheaper in construction but much inferior to any English made goods and of course we have to suffer. We would suggest a preferential tariff as much in our favour as possible, or what would be better, free trade within the Empire.

945

(E) EFFECT OF FOREIGN TARIFFS

Effect of Foreign Tariffs

Question 7 (Form I.): *Has your export trade suffered in recent years by the operations of the tariff o any country? If so, please state your experience.*

Besides the replies to the forms given below, 175 firms complain in general terms of the adverse effect of foreign tariffs on their export trade. These complaints refer principally to the United States, Germany, Russia and France, but many other countries including Belgium, Italy, Switzerland, Spain, Portugal, Sweden, Denmark, Australia, Canada, Cuba, &c., are mentioned. A few typical replies in the most important branches may be quoted. *Electrical machinery :*—" Exports have been stopped by United States tariff " ; " Exports to United States and the Continent have entirely ceased " ; " We are entirely shut out from United States, Germany, &c. " ; " It is useless to attempt to compete in the United States and the Continent." *Marine Engineering :*—" We are shut out absolutely from the United States " ; " United States duty on ships and machinery is prohibitive." *Engines and Boilers :*—" We have never been able to sell anything in the United States, Canada and Germany, duty being prohibitive " ; " Exports to Russia, Mexico and Portugal ceased through increased tariffs " ; " Thirty years ago we had a very large trade, but since the McKinley tariff we have not sent one boiler " ; " Our export to the Continent now is practically nothing " ; " Our whole export trade has gone within the last five years." *Acetylene Gas Plant :*—" High tariffs have precluded attempts to obtain trade." *Gas Meters* :—" We are completely shut out by foreign tariffs." *Motor Cars* :—" Our export trade never existed owing to the foreign tariffs " ; " We have no chance to export to France and Germany " ; " Our American trade is practically dead owing to tariffs ; " " It is useless to try to export to France." *Cycles* :—" It is impossible to export to the United States." *Hydraulic Presses* :— " We are severely handicapped in Germany and France." *Pumping Machinery* :—" We had formerly a good export trade to France and Belgium which has now ceased." *Water Meters* :—" We cannot attempt to sell abroad." *Radiators* :—" Tariffs are absolutely prohibitive." *Ventilators* :—" Our French trade is practically lost." *Machine tools* :—" But for the duties we should do a large trade in France " ; " We are shut out from continental countries " ; " We are completely shut out from the United States." *Agricultural Machinery* :—" We could employ double the hands if the tariffs were reduced " ; " Exports to the United States and Germany have entirely ceased " ; " We have lost our export trade to Chile, Austria, &c." *Mining Machinery* :—" High tariffs have closed markets to us." *Textile machinery* :—" Tariffs make competition impossible in the United States, Russia and Italy " ; " We suffer very considerably in Russia, Austria and Italy " ; " Our export trade has been killed by tariffs." *Printing machinery* :—" Exports to Russia have entirely ceased " ; " Our trade with the United States and Canada has entirely gone." *Paper machinery* :— " No exports in late years." *Chemical plant* :—" Our trade with America has completely died out." *Brickmaking machinery* :—" High tariff precludes the sale of our machines in the United States." *Weighing machines* :—" We have suffered in far too many cases to give details." 946

In addition two firms stated that they are not seriously affected by the operation of foreign tariffs and 49 firms make no complaint as to their effect. 947

Structural Engineering

FIRM No. **160.** Iron and Steel Bridge Builders.

In our particular branch of constructive engineering which includes the manufacture of bridges, roofs, piers, gasholders, &c., our export to foreign countries is almost nil as protective tariffs effectually close the doors against us. Were it not for our export business with our Colonies (particularly South Africa, very little being done with Canada and Australia) our export business would not be worth having. If in our trade the exports were increased by the removal of foreign tariffs it would tend to remove the competition in the home trade and generally find more employment.

ISCA FOUNDRY CO., NEWPORT, MON. ; Constructive Engineers, &c.

We formerly did most of our trade with all the European countries where we had agents, but we have been compelled to withdraw these agencies successively as the tariffs excluded us, our trade has therefore now almost entirely become dependent upon our Indian and Colonial markets.

FIRM No. **1,654.** Manufacturers of Steel Constructional Work, &c.

948 We have exported moderate quantities of sectional steel to the United States during the last two years, but we could have done a large volume of business had the tariff been substantially lower. Our export of ship's cables, anchors and gear to the United States, Germany, France and other Continental countries has fallen off steadily over a period of years.

FIRM No. **533.** Engineers, &c.

The effect on British trade of a tariff is to shut out the cheaper qualities, as only goods of a superior quality can be sold in competition with the protected goods. Industries being stimulated abroad by tariffs, the import trade runs more to parts of machinery, tools and partly finished goods. The protected manufacturer has to buy imported goods, although the importing merchant may not import so much of the finished goods for sale to the consumers.

FIRM No. **1,013.** Manufacturers of Destructors, &c.

We cannot say our trade has suffered through tariffs. We undertake contracts frequently in protected countries but being patented everywhere and our stuff being heavy we get it made as near as possible to the place where it is to be used.

949

Electrical Engineering.
Machinery

THE GENERAL ELECTRIC CO., LTD., 71, QUEEN VICTORIA STREET, LONDON, E.C.

We used to do a fairly satisfactory trade to France, Germany, Russia and other continental countries. We still export to Holland, France and Belgium, but all other countries on the continent are practically closed to us, partly on account of hostile tariffs, partly because German methods, style and specifications have ousted the English.

W. C. MOUNTAIN, SCOTT AND MOUNTAIN, LTD., CLOSE WORKS, NEWCASTLE-ON-TYNE ; Electrical Engineers.

Our export trade suffers indirectly from the system of dumping which enables German firms to establish large works with a large production and work at a minimum of cost. This they are able to do in a protected home market and of course we cannot do so in this country where we are subject to so much foreign competition. It is quite impossible with the tariff existing that we can send machinery over to Germany or America, in fact we have given up trying to do business with these countries. As regards our Colonies and South Africa, although a small preference exists, still the fact that the German and American firms are able to send their surplus manufactures to these countries from a protected market puts them in a position which no English manufacturer can be in.

Effect of Foreign Tariffs

Electrical Engineering.
Machinery
—continued

950 W McGeoch & Co., Ltd., 108, Argyle Street, Glasgow, and Warwick Works, Birmingham; Manufacturing Electrical Engineers, &c.

The United States tariff of 40 per cent. is prohibitive to our electrical manufactures and through the German Government encouraging shipbuilders (who are our principal customers) to buy everything in their own country we have lost what trade we had there.

Newtons, Ltd., Electrical Works, Taunton; Manufacturers of Dynamos, &c.

We have no export trade in dynamo electric machinery to speak of and this we attribute to the tariffs imposed on this class of machinery by foreign countries desirous of building up similar industries.

The Reason Manufacturing Co., Ltd., Lewes Road, Brighton; Electrical Engineers.

Export trade has not increased, on account of adverse tariffs. A small business has been done where the tariff is not excessive but only through cutting prices lower than those that obtain for the home market.

Firm No. **987.** Manufacturing Electrical Engineers.

If it were not for the foreign tariffs it would be possible for us to export goods in large quantities, particularly to the United States and Germany and in a lesser degree to France. In Russia the position
951 is worse as that country offers a preferential tariff to Germany and others, leaving out the United Kingdom. The great disadvantage of these foreign tariffs is that our market is restricted, our home market is invaded and it is consequently impossible to manufacture any of our goods in large enough quantities to produce them at an equally low rate.

Firm No. **1,453.** Electrical Engineers.

The high tariffs imposed by Russia and Germany have diminished our exports there. We used to do a large trade with Russia but adverse tariffs &c. have affected our entire policy. The difficulty of importing our manufactures into those countries caused us to sell our foreign patents a few years ago. Part of the purchase-money paid for them was in the form of shares, thus leading to investment of money abroad which otherwise would have been employed in this country in enlarging our works and leading to the employment of more hands.

Firm No. **1,479.** Electrical and Telegraph Engineers, &c.

We have repeatedly lost export orders although our prices have been extremely moderate and we can only conclude that the operations of the tariff in all such cases have had some considerable influence.

Supplies and Accessories

G. Christie, Ltd., 197, Broomloan Road, Govan, Glasgow; Manufacturers of Dynamo Brushes, &c.

952 The United States tariff has excluded all our goods except the very finest class which are not manufactured there and have to be imported no matter what the tariff may be. The German tariff also makes business with that country impossible.

Marine Engineering.
Shipbuilding

The Wallsend Slipway and Engineering Co., Ltd., Wallsend-on-Tyne; Engineers.

The import duties in France, Russia and United States have prevented or hindered our exporting finished machinery to those countries. The number of vessels including engines and boilers built for Germany on the Tyne has been greatly reduced owing to the increased facilities and appliances which German shipbuilders have established in recent years.

Ritchie, Graham and Milne, Whiteinch, Glasgow; Shipbuilders.

The heavy import tax in the Australian Colonies prevents buyers from ordering light draft vessels for shipment in pieces for re-erection at destination, consequently as these Colonies are not sufficiently advanced to build in steel they build their light draft vessels of wood on the spot as a rule and only order the engines from home. The duty in all other countries being moderate we have no difficulty in getting orders from them.

The Seamless Steel Boat Co., Ltd., Calder Vale Road, Wakefield; Boatbuilders.

953 Several of the leading American shipping lines would like to have used our boats, notably the America Line, but owing to high tariff the price was prohibitive.

Hepple & Co., Ltd., Wapping Street, South Shields; Shipbuilders, Engineers and Dock Owners.

We now seldom build tugs for foreign places owing to the amount of duty payable by the purchaser on taking the finished vessel—Russia in particular. At one time we sent out about six vessels, value £25,000 per year.

Firm No. **1,053.** Shipbuilder and Engineer.

No new vessels being allowed to be registered in the United States unless built there, and the construction bounty paid to French shipbuilders have caused these markets to be closed against us.

Firm No. **656.** Shipbuilders, &c.

Our trade suffers by shipping bounty laws (if such may be called tariffs) of France, Italy, Japan and the United States. In Spain some protective shipping bounty laws exist and the same state of affairs prevails in Russia with special reference to their coasting trade. Japan has recently increased the duty on foreign built ships. In the United States British built steamers are not admitted on their register of shipping.

954 ELLIOTT AND GARROOD, LTD., INGATE IRON WORKS, BECCLES, SUFFOLK; Manufacturers of Specialities for Fishing Vessels, &c.

Our manufactures being calculated to help and encourage the fishing industries, are admitted free of duty by Holland and Germany.

Machinery

DAY, SUMMERS & CO., LTD., NORTHAM IRON WORKS, SOUTHAMPTON; Engineers and Shipbuilders.

Our two specialities, viz., hauling-up ship machinery and steam traversing shears are most adversely affected owing to the heavy tariff foreign countries impose on English machinery. Although we have a large number of inquiries from foreigners for these special classes of machinery it is the exception to receive an order from abroad, not on account of our actual price being too high, but the price plus import duty prevents our securing the order.

FIRM No. 892. Marine and General Engineers.

Tariffs have injured us and prevent us extending our export trade. The duty levied on our manufactures entering America prevents us competing there notwithstanding that for certain purposes our product is preferred by engineers. As an example, two vessels were built by an American shipbuilding and engineering company for the Atlantic Transport Company, and certain of our specialities were specified to be fitted. Our prices and drawings were obtained, and finally American-made appliances were fitted instead, notwithstanding that our gear was specified and desired by the superintending engineer. 955 From consulting engineers we have had repeated assurances that our gear would be adopted in preference to existing designs if the price would permit, the excess in cost being solely due to the tariff. In one or two instances, such as private yachts for millionaires, our gear has actually been supplied and the duty paid.

FIRM No. 837. Marine and General Engineers.

Our export trade has suffered recently by the operation of the tariff of America. Towards the end of 1900 we received an order for a quantity of machinery to be consigned to a firm in Manila. This consignment gave such satisfaction that at the close of 1901 we received a larger order for the same class of goods to be consigned as on the former occasion. Since that time the business done by us in the same quarter has been trifling. We have been repeatedly informed by merchants and others capable of judging that this falling off of business is due to the importation of goods from the American markets.

FIRM No. 399. Manufacturers of Marine Engines, &c.

Our export trade has suffered in the case of the United States and Australia. In the latter country an import duty of about 15 per cent. on our goods operates disadvantageously, sometimes to the extent of preventing sales. But this in no way as far as we are aware is affected by foreign competition.

FIRM No. 1,317. Marine Engineers.

956 Our whole policy has been framed on account of the adverse operation of foreign tariffs and patent laws rendering it difficult or impossible to export. Not only does this affect the engines we manufacture but the ships built in this country in which our engines might be placed. Building Russian vessels on the Tyne (a large business a few years ago) has practically ceased owing to the heavy Russian tariff on British-built ships.

J. HASTIE & CO., LTD., KILBLAIN ENGINE WORKS, PRINCES STREET, GREENOCK, N.B.; Steering Gear Makers.

We frequently tender for foreign work and fail to get the order, but we believe our competitors are generally in this country. Last year however in France a shipowner wished our gear to be fitted but the shipbuilder informed us that after adding the duty to our price he could do better at home and he induced the owner to accept a gear of French make.

FIRM No. 1,053. Shipbuilder and Engineer.

The French bounty is 65 frs. per gross ton on iron or steel vessels and 15 frs. per 100 kilos. on the engine. There are also navigation bounties. It has been estimated that a French steamer of 6,000 tons dead weight might measure 5,000 tons gross on which 325,000 frs. would be paid for the hull and 6,000 frs. for the engines, or about £15,400.

Accessories

957 LANARKSHIRE STEEL CO., LTD., FLEMINGTON, MOTHERWELL, N.B.; Manufacturers of Steel and Sectional Material for Shipbuilding, &c.

Our export trade has always suffered by the operation of foreign tariffs. We had considerable trade from Canada until the demand in the United States for home consumption had fallen off, after which the steel makers in that country commenced dumping in Canada, Eighteen months ago we were supplying steel for shipbuilding in the United States, notwithstanding that we were handicapped by transport charges and an import duty of £2 per ton. This trade ceased as soon as United States home demand fell below their production. We send no steel to any tariff-protected country in Europe.

I. PRESTON, MEREDITH STREET, CRADLEY HEATH, STAFFS.; Manufacturer of Anchors.

Few of my goods get to countries with a high tariff and if it were not for our own Colonies and a few comparatively open or non-producing countries it would be black for our export trade.

Mechanical Engineering.

Engines and Boilers

HICK, HARGREAVES & CO., LTD., SOHO IRON WORKS, BOLTON; General Engineers.

We formerly supplied a certain amount of machinery to continental countries in spite of their duties, principally where the size of the plant was beyond the scope of the local manufacturers. This trade has now ceased presumably because of increased local facilities for manufacture, with the exception of Russia

Effect of Foreign Tariffs

958 where apparently such machinery cannot yet be supplied in competition with English prices, notwithstanding the heavy protection duties.

Mechanical Engineering. *Engines and Boilers —continued*

Brazil, Holborow and Straker, Ltd., Vulcan Ironworks, Bristol; Engineers.

We are debarred from exporting steam engines to America and the continent owing to prohibitive tariffs. This is so distinctly recognised that it is not worth answering inquiries for quotations. The foreigners knowing that their tariffs keep us out do not often trouble themselves even to send us inquiries for our manufactures.

Richard Garrett and Sons, Leiston Works, Suffolk; Makers of Steam Engines, Boilers, &c.

In Austria-Hungary after 40 years' extensive business we are practically driven out by the tariff and our trade suffers also severely from the same reasons in France and Italy. In the United States and Canada the tariffs have always been prohibitive to business in our branch. In Germany our trade has suffered very severely from the severe competition of German makers protected by their tariff, which latter is now further increased to an extent which almost prohibits English machinery.

Firm No. **135.** Engines and Mill Gearing Manufacturers, &c.

In Portugal we are practically shut out as regards millgearing and steam engines up to a certain size.
959 New parts required for any large engines (500 or 600 horse-power) in Portugal are subjected to a prohibitive duty. Russia and France are also countries where our trade suffers through the tariffs.

Firm No. **165.** Engineers.

Our export trade has suffered considerably, mostly with America, owing to the prohibitive tariff put upon engines, &c., which we make and if such a tariff were abolished we could compete very successfully in the American markets.

Firm No. **C 343.**

The German tariff has had the effect of shutting out certain manufactures of this district and thus enabling the Germans to construct such machinery and to export to other countries which were previously supplied by this country.

Firm No. **C 1,417.**

Prior to the annexation of the Hawaiian Islands by the United States British manufactures were admitted there at a duty of 10 per cent.; now they are subject to the United States tariff. Hawaiian engineers, ironfounders, &c., used to import a good deal from the United Kingdom which is now got from the United States.

960 J. Fraser and Son, Ltd., Millwall Boiler Works, London, E.; Manufacturers of Steel Boilers, &c.

The import duties prevent our selling in most continental countries. Up to six or seven years ago manufacturers in our line of business over there were hopelessly behind us and we were able to sell in spite of these duties, but they have gradually been improving their works. Their average works are not now equal to British ones yet they have so improved their position as to be able by the help of their duty to prevent our exporting. No doubt at a fairly early date they will be competing with us in our own markets here, consequently an import duty should be put on of 10 per cent. in this country.

Firm No. **1,096.** Manufacturers of Wrought Iron Welded Boilers.

We are completely debarred in America and in Germany through tariffs. We do not have one-third the orders we used to have before the closing of Hamburg as a free port. In France and Italy we can do nothing.

Wm. Smith and Sons, Barnard Castle, Co. Durham; Engineers and Iron Founders.

Our export trade has suffered very much in Germany and America and France. In each country about 15 years ago we did trade to the amount of about £1,200 per year, now we are not doing £200 with America and Germany together and nothing at all with France.

Stokers and Economisers

961 Firm No. **C 1,718.** Makers of Economisers.

The duty in Russia, America and Austria has killed our trade in these countries. We have established works in America, and in Austria we have made arrangements with a firm to make our economiser under licence. In Russia the local makers can compete with us successfully and it is only when the purchaser insists on an English machine that we are able to secure business at all. In Spain and Italy the duties prevent our trade extending as it makes the cost of the apparatus too heavy. The French duties enable the local maker to compete with us successfully.

The Bolton General Engineering Co., Little Hulton, Bolton.

Our designs are so much better and the weight so much better distributed that we give a good account of ourselves and they only get the least desirable end of the trade—those that want cheap lines.

Locomotives

North British Locomotive Co., Ltd., 17, Victoria Street, Westminster; Locomotive Engineers.

It is many years since any important export trade was done in our business with any of the principal foreign countries which have protective tariffs, such as the United States, Germany, Russia, France, &c. But in some of our own Colonies, notably Australia there is a marked tendency to establish manufacturing industries such as ours and to protect them by tariffs designed to exclude us, although at an enormous cost to the Colony. 962

THE VULCAN FOUNDRY LTD., LOCOMOTIVE WORKS, NEWTON-LE-WILLOWS, LANCASHIRE; Engineers.

Germany has recently become a keen competitor and takes much of the work we formerly obtained. Their prices are much below our cost and it is obvious they are only enabled to accept work on these conditions owing to their tariff so protecting their home industries as to put it in their power to balance the losses incurred on their export business while capturing our markets. We have practically lost our Japanese market.

FIRM No. **1,436.** General Engineers.

Our export trade to Germany and Austria has been seriously affected by the tariffs in these countries and it is every year made more difficult. Two years ago a large increase was about to be made in the German tariff, but the dispute between the agriculturists and the manufacturers resulted in a deadlock, hence we are still able to continue exporting to Germany. In Austria the duties are heavier than in Germany averaging in our case about 18 per cent. This will we believe shortly be largely increased and we anticipate having to discontinue our trade there.

Gas Engineering

FIRM No. **1,537.** Structural Engineers, &c.

963 Our trade has suffered in Germany, Austria, Italy, America and Canada, principally in gasholder, steel tank work and cast iron gas purifiers, the tariff being so high as to exclude us entirely. In Germany it is £3 0s. 10d. for steel or wrought iron and £1 10s. 5d. for cast iron; France £3 5s. per ton, lowest, for our manufactures; Italy £4 5s. to £5 7s. 6d. for cast iron and steel; Austria and Hungary £5 1s. 8d. per ton for cast iron and steel.

SCOTCH AND IRISH OXYGEN CO., LTD., ROSEHILL WORKS, POLMADIE, GLASGOW; Makers of Compressed Gases and Accessories.

We have lost likely orders from the United States owing to the high tariff. We executed sample orders for valves but the high duty precluded large orders following although our goods were quite satisfactory.

FORM No. **208.** Gas and Electric Light Fittings (Brass) Manufacturers.

The German trade has practically been lost within the past 5–6 years through the tariff. We believe much of the extreme cutting of prices in the home market is due to the reduced exports throwing manufacturers back on to the home market for trade.

ASHMORE, BENSON, PEASE & CO., LTD, PARKFIELD WORKS, BOWESFIELD LANE, STOCKTON-ON-TEES; Gas Engineers, &c.

964 Our export trade has of course suffered through tariffs. We find it hard to quote low enough to get orders in Canada and South Africa in mining work such as cyanide tanks. In 1896 we made these by the hundred, now the Belgians and Americans supply them cheaper than we can.

FIRM No. **501.** Gas and Water Engineers and Cast Iron Pipe Manufacturers.

For many years we did a large business with Russia in cast-iron pipes and valves but as the duty on cast iron pipes is now £7 per ton, it is impossible to get our work into that country. We also used to do a large trade with Germany but this has entirely gone. In both cases the tariffs have been put on in order to protect their home industries, with the result stated.

Steam Cranes

H. J. COLES, LONDON CRANE WORKS, DERBY; Crane Maker.

In Germany, to which country I export a considerable number of steam cranes, the customs authorities have excluded them from the class to which they belong, viz., machinery of which the greater proportion is cast iron, but have a separate class for them at a higher rate, viz., 8 marks per 100 kg. instead of 3 marks per 100 kg. This I presume has reference to the fact that steam cranes of British manufacture are exported to Germany in larger numbers than other classes of machinery.

Motors and Cycles

965 FIRM No. **1,543.** Steam Cart and Wagon Manufacturers.

High tariffs prevent our steam carts and wagons being used in foreign countries as it increases their cost and handicaps them in competition with horses. We have recently sent a steam wagon into New Zealand (home value about £500). When it arrived our agents had £120 duty to pay. This plus carriage, &c., adds so much to their cost that it prevents them from competing with horses except upon certain classes of work and restricts the number which would be sent there.

FIRM No. **C 1,201.**

The reason why French firms are in a position to quote us and to sell to us satisfactory motor parts at a profit at a much less price than the English manufacturer can even make them, let alone the profit, is, that the French manufacturer for all these goods is protected in his country by a tariff which enables him to manufacture the goods with confidence and make them in quantities as he knows at any rate his own home market is open to him, and after that is supplied he is able to send his surplus output to any country that requires these parts, especially England where there is no tariff against him. The consequence is he is able to manufacture in quantities absolutely impossible to the English manufacturer, who could not get rid of his stock on to the Continent because the duty he would have to pay would make his goods dearer than the goods manufactured in the country, without any compensating advantage to the purchaser.

Mechanical Engineering. *Motors and Cycles —continued*

966 Firm No. **684.** Traction Engine Makers.

Prior to about the year 1880 we did a good trade in Russia, Austria-Hungary and Germany in portable steam engines and thrashing machines. Owing to the increase of the tariffs in Hungary and Russia, we had to abandon the trade altogether in those countries early in the eighties, and the duty on engines into Germany has reduced our trade with that country to almost nil.

The Quadrant Cycle Co., Sheepcote Street, Birmingham; Manufacturers of Motor Bicycles, &c.

Until the McKinley tariff we did an excellent trade in the United States. In October 1890 the contract for 1891 season was sent to us, but two days after its receipt it was cancelled by cable in consequence of the duty being increased from 35 per cent. to 45 per cent. ad valorem. This contract amounted to £40,000. We then opened depôts in Boston and Chicago but finally cleared out in 1894 with very heavy loss. This was the fate of about a score of companies. We did an excellent trade all over France until 1892. The Méline tariff in that year raised the duty from 120 frs. per 100 kilos. to 220 frs. Within three years this drove all the English establishments (selling depôts) out of France at great loss. As the British-made cycle always has been and still is considerably superior to the foreign made article British houses could still sell freely in the above markets if the tariffs were moderate. A few still sell in France but only a few.

John Marston, Ltd., Paul Street, Wolverhampton; Cycle Manufacturers.

967 The protective tariffs of foreign markets have gradually excluded us. The United States destroyed the English bicycle trade in America by means of an ad valorem duty of 45 per cent. in 1890. Other countries have gradually done the same. The bicycle was really an English invention and the manufacture of it would have remained largely in English hands till this day had not foreign capitalists created the industry in their respective countries with the aid of protective duties. About the time England perfected the bicycle, the United States perfected the typewriter. The two inventions have many points which make them useful for comparison. Some of the American capitalists who first took up bicycles had made their money from the manufacture of typewriters. It would be interesting to consider what would have been the result of putting 45 per cent. duty on American typewriters when the United States put 45 per cent. on English bicycles. As it is America makes all her own bicycles and practically all our typewriters as well. The effect of all foreign tariffs is to discourage English manufacturers from trying to sell in foreign markets. The effect of our English system of free imports is to encourage foreign manufacturers to try to sell in our markets. The whole spirit of the thing is wrong.

James Rickard & Co., Brentford, London, W.; Cycle Manufacturers and Engineers.

We have no export trade and have no hope of getting any until we treat other countries as they treat
us. I had a splendid trade abroad and in the Colonies for my goods until foreign countries raised their
duties and shut me out after my spending hundreds of pounds advertising and building up a business in those
968 countries. Goods that I could not deliver in New York under £25 each were dumped down at Liverpool
from America and sold at as low a price as 5s. each, new. Of course I admit they were not so good as
my products, but they stopped me and hundreds of others, causing ruin and something akin to disgrace
through no fault of our own or our workmen, whom of course we had to discharge and close our three works.

Firm No. **355.** Cycle Manufacturers.

Owing to the heavy duties levied on English cycles we are to a considerable extent kept out of the continental markets and altogether from the American market. Consequently fairly good prices are obtained by our continental and other foreign competitors, which enable them to send their over-production into our country at even less than cost prices. In France we do no business now owing to the duties. Before duties were increased, only a few years back, we had for many years one of the largest distributing cycle depôts there. In America the same thing occurred. We have with much perseverance and expense worked up a fairly good business in Germany and we are now in a position to place on the German market a very fine English-made bicycle at practically the same prices as are paid for the better class of German-made machines; but no sooner have we accomplished this than we understand that after next February the duty is to be raised to three times the present rate. We consider this most unfair competition and some serious steps should be taken by our Government by retaliating in some way unless the Germans agree to withdraw this unfair burden placed upon English manufacturers.

969 Firm No. **1,581.** Cycle Manufacturers.

As the tariffs of continental powers have been raised our exports to those countries have declined. Tariffs on cycles in nearly all have doubled and trebled during the last 14 years. To Germany our exports have fallen from £5,000 yearly to nothing. To France from £11,000 yearly to almost nothing. To Italy from £12,000 yearly to less than £150. Other countries much the same.

The Raleigh Cycle Co., Ltd., Nottingham.

In Italy if frames and wheels of cycles were (as formerly) admitted as parts, even unfinished, we could quadruple our exports easily, or if the rate for them were the same as for small parts of cycles we could compete. The Italian duty on a cycle is 42 lire, and a wheel or a frame or even a cycle rim that is drilled cannot be imported without paying 42 lire, but what they call parts to make cycles are let in at 30 lire per 100 kilos., 1–15 of the cycle duty.

Hydraulic Engineering

Firm No. **401.** Manufacturers of Hydraulic Machinery.

Our export trade has suffered in recent years enormously by the operation of tariffs. In some countries we have entirely ceased business. In America years ago we used to do many thousands of pounds worth of orders a year. Owing to a duty against us of 60 per cent. we do not suppose we have sold £100

970 worth of machinery to America within the last ten years. The same remark applies to Germany with the exception of Hamburg, where we have practically a monopoly of the supply of centrifugal pumping machinery. We are scarcely able to get an order now in Russia, where a few years ago we always had large numbers on our books. In Holland where we had practically a monopoly we find it almost impossible to get an order now.

Glenfield & Kennedy, Ltd., Kilmarnock; Hydraulic and Sanitary Engineers.

Our export trade has suffered through tariffs, principally in supplying water meters and waterworks' material to France and Belgium. Twenty years ago our meter was one of four licensed to be used in Paris, the others being French. Owing to the duty being about twice the cost of the meter we bought land and erected works in Paris where the great bulk of our meters for use in France have since been made. Our sales to Australia, notably New South Wales, have been greatly reduced in recent years through tariffs. We do nothing with America, Germany and Russia owing to the heavy tariffs.

Joseph Richmond & Co., Ltd., 30, Kirby Street, Hatton Garden, London, E.C.; Engineers.

Our sales are crippled in every country where there is a tariff on machinery. In most cases it entirely prevents the sale of ordinary machinery; patented specialities are not crippled to the same extent but even the sale of these is limited. 971

Firm No. 937. Hydraulic and General Engineers, &c.

We had a large trade with Australia (Melbourne and Sydney) some years ago in machinery and pipes. Since the tariff has been put on to their goods our trade has gradually fallen away until now we are practically out of it. Our trade in cast iron pipes to Canada was also injured by the tariff, but since the preference orders are again coming in.

Heating and Ventilating

Follows and Bate, Ltd., Manchester; Engineers.

For many years prior to 1878 we kept a large staff of men making patent ventilators for the German market; it was a good business and profitable. Bismarck's tariff stopped it suddenly and on visiting Hanover, Berlin, Mayence, and other German towns we found all our patterns copied and appropriated. It was impossible to evade the tariff by sending the goods partly made or unpainted. The tariff shut them out completely and all our men had to be discharged.

Miscellaneous

Firm No. 347. Elevator Manufacturers, Builders, &c.

Our export trade has suffered considerably in France by the large duty placed on our goods. We find there is a very large opening for elevating and conveying machinery in France if the duty on our steel work were not so high. 972 It is about £4 per ton. We have been seriously thinking of building a new works in Paris for the manufacture of our elevating and conveying machinery which is for the purpose of handling material and thus saving labour.

R. White and Sons, Widnes, Lancashire; Railway Engineers, Merchants and Contractors.

Our firm used to do a large trade in steel rails in America before the McKinley tariff came into operation, when the whole trade was at once cut off. A few months ago we sold 10,000 tons of broken defective steel rails to the United States to be used exactly the same way as steel billets and on which the billet duty only of 4¼ dolls. per ton was to be paid. When however we had completed delivery of about one half the quantity the United States Customs officials put up the duty to the rail tariff of 8½ dolls. per ton, although it was proved to them that the rails we were sending being broken into short lengths were quite unfit for use as rails, in fact it would be impossible to use them as such and that they could be only used as billets. They were even taken to the works and shown the process of rolling these rails down but they still refused to give way and consequently we had the remainder of the order cancelled.

Steel Barrel Co., Ltd., Uxbridge; Manufacturers of Electrically-welded Steel Tanks, Casks, &c.

We are unable to do business in Canada in consequence of the high tariff. The new tariff does not help us as our goods are still subject to 20 per cent. net duty. Under the old tariff it was possible to get our steel barrels admitted into Canada as packages filled with some commodity, 973 but now such packages are subject to the same duty as if empty.

Accessories

Sydney Smith and Sons, Barford, Nottingham; Brass Founders, Steam Gauge Manufacturers, &c.

In consequence of hostile tariffs our trade with foreign countries which in past years was satisfactory has been restricted to a few specialities and patented articles. The shipments to our Australian Colonies are not nearly so large as they used to be. Our agents out there attribute this to the market getting more and more into the hands of Americans and Germans. The Colonials themselves also make goods for immediate wants. The indents from our Colonies still remain the best part of our export trade. It is impossible to ship our goods to America, Germany, Russia, Austria and others on account of their huge tariff walls.

Ransome and Marshall, 67, Tithebarn Street, Liverpool; Engineers and Exporters.

Our exports to the United States, China, France and Germany have suffered through tariffs. Our patterns are copied and made abroad saving freight, &c., to say nothing of the men working longer and getting less pay.

Effect of Foreign Tariffs

Mechanical Engineering.
Tubes

974 I. CORDINGLEY, INNORE FOUNDRY, TROWBRIDGE, WILTS; Maker of Gas Engines, &c.

I could have sold a great number of wrought iron pulleys but for the tariff. My agent, who spent a good deal of money to introduce my goods, had to give me up because I could not allow him discount enough to cover tariff.

CHISHOLMS & HENDRY BROTHERS, LTD., 28-34, ROBERTSON STREET, GLASGOW; Manufacturers of Wrought Iron Tubes and Fittings.

The import of our tubes into Germany or the United States being absolutely prohibited these countries create an artificial price at home, and are thus enabled to export often at a loss, or at prices under cost of production. In the United States this is done intermittently, but it has a damaging effect on the whole of our trade.

FIRM No. **917.** Manufacturers of Weldless Steel Tubes.

Until last year we did an average of about £6,000 per annum with Germany, and up to five years ago we were doing an average of about £2,000 per annum with France. The trade with both these countries has been practically killed by the alterations of the tariff in the respective countries, which makes it impossible for us to compete with the manufacturers of the country. Up to the year 1897 we were doing an average of about £10,000 a year with the United States; this trade is now reduced by one half for the same
975 reasons.

NEW BROTHERTON TUBE CO., LTD., COMMERCIAL ROAD, WOLVERHAMPTON; Welded Tube Manufacturers.

A few years ago all the weldless steel tubes used in the United States for the manufacture of cycles were made in this country, but the United States built their own factories about five or six years ago and then put on a duty of 45 per cent. against us, since which time it has been impossible to export this class of tubes to the United States although we can make them better and cheaper in England than they can. The consequence is that the weldless steel tube trade is in a very bad way, very few firms, if any, have paid a dividend for some years, and the shares of the different companies are quoted very low.

D. F. THOMSON & CO., 4, DUKE STREET, ALDGATE, LONDON, E.C.; Wrought Iron Tubes and Cast Iron Pipe Merchants.

The trade in rubber insulated copper wires throughout the East generally has within the last few years been transferred to Germany to an appreciable extent. In South America the Italians are ousting the British. British foreign merchants say they are compelled to place their orders abroad on account of prices being so much lower.

FIRM No. **948.** Manufacturers of Cast Iron Pipes for Water, Gas and Sewerage purposes.

In succession our trade with the following countries has suffered practical extinction by the operation
976 of tariff:—United States, Canada, Germany, Russia, France, Italy, Victoria, and New South Wales. Canada, since differentiation of tariff in favour of this country, has again become an open market for us.

FIRM No. **904.** Brass and Copper Tube Makers, &c.

Within the last 20 years we have been practically shut out of France, Germany and the United States by the high tariffs, whereas formerly we were able to do a good business in these countries. Belgium is also now a closed market and Norway and Sweden have recently imposed tariffs against us to the detriment of our trade.

Packings, &c.

FIRM No. **1,110.** Manufacturers of Steam Packings, &c.

The tariff in America on our class of goods is so high that to compete against them is out of the question, yet they send large quantities here free of duty. We have made attempts in Chicago and New York to introduce our goods with but qualified success. The duty against us is about 40 per cent., and our correspondents say that it consequently makes it a very uphill if not nearly hopeless fight.

THE CASTLETON STEAM PACKING CO., BROADHEATH, NR. MANCHESTER; Manufacturers of Steam and Hydraulic (fibrous) Packings.

Previous to the McKinley tariff in the United States, we were doing a large business, but our trade
977 was then cut off by the duty. We are situated the same with regard to both Germany and Russia. In the latter country on a certain class of packing which we manufacture the duty is 3½ times the price that we get for the goods in our home market.

Industrial Engineering.
Machine Tools

J. ARCHDALE & CO., LTD., LEDSHAM STREET, BIRMINGHAM; Machine Tool Manufacturers.

The tariff on machine tools to America is prohibitive (45 per cent.) and we never attempt to do any business. This also applies in a lesser degree to Germany and France.

J. BUTLER & CO., VICTORIA IRON WORKS, HALIFAX; Engineers and Manufacturers of Machine Tools.

Our trade with Russia has declined considerably in the last few years owing to increased tariffs. We have lost at least £2,500 per annum or nearly 8 per cent. of our total output. In Germany and Belgium our trade has fallen away considerably owing to increased tariffs and the fact that considerable quantities of our class of machines are now made in those countries. We can do no trade with the United States owing to the tariff.

HUDSON AND GRIFFITH, DALTON TOOL WORKS, KEIGHLEY, YORKS; Machine Tool Makers and Engineers.

Twenty years ago the bulk of our trade was export, now the bulk is home. This is the result of protective tariffs especially in America.

J. LANG AND SONS, JOHNSTONE, NR. GLASGOW; Lathe Manufacturers and Tool Makers. 978

America is our principal competitor. We have not been able to send our goods there on account of the high tariff and in recent years both America and Germany have been sending into this country a considerable number of lathes and machine tools.

FIRM No. **630.** Machine Tool Manufacturers.

Since the last French tariff in 1892 increased the duty on machine irons some 50 to 60 per cent. on the duty in vogue up to that date the possibility of selling our goods in this market is almost gone. Under the term machine irons all finished goods made from combined iron and steel are included. At the same time the French duty on files was increased by 10 per cent. and on best tool steel by 66 per cent. and the normal selling price in the French market is to-day below what it was previous to this increased duty. English exporters pay the increased duty out of their pockets.

LUDW. LOEWE & CO., LTD., 30–32, FARRINGDON ROAD, LONDON, E.C.; Merchants in Machine Tools, Small Tools and Gauges.

In answering this question we would refer to Section 10 of Mr. Balfour's "Economic Notes on Insular Free Trade." For the same reasons that Mr. Balfour gives we consider it must be a benefit for British manufacturers to buy, and import if necessary, the most recently invented machinery in order to manufacture and meet competition to the best advantage. Mr. Balfour's views are apparently shared by most foreign countries, highly protective countries like Germany and France placing merely nominal import or registration duties on machine tools and hand tools of this class, based on their weights. The duty on machinery for manufacturing purposes imported into Germany is 3 marks per 100 kilos. and on hand or small tools 15 marks per 100 kilos., which represent very small percentages of the average values. The corresponding duties in France are 10 to 50 francs per 100 kilos. 979

NOBLE AND LUND, LTD., THE NORTHERN MACHINE TOOL WORKS, FELLING-ON-TYNE; Engineers and Tool Makers.

We most decidedly answer this question in the affirmative. Only the tariffs account for the fact that in many instances where we have sent tenders in response to foreign inquiries we have failed to secure the order. The high tariff has prohibited it.

J. TANGYE, PARK LANE EAST, TIPTON; Manufacturer of Machine Tools.

It is impossible to sell English machine tools in Germany, Belgium, France or the United States owing to tariffs which are designedly prohibitive. I have from time to time inquiries from these countries but have given up quoting, these inquiries being merely for the purpose of obtaining designs and information.

A. A. TATTERSALL, MILL HILL EMERY WORKS, BLACKBURN; Emery Wheel and Emery Machine Maker 980

We are driven into our home market by foreign tariffs because we cannot scale the tariff walls of America and Continental countries. But we should have a much larger home trade if protected to the same extent as other countries.

GEO. THOMAS & CO., 60, DEANSGATE, MANCHESTER; Engineers and Exporters.

In tools, engines, boilers and many accessories for same, Germany, Austria, Sweden, &c. shut us out by their tariffs and their well-equipped engineering works. Moreover Germany, France, Belgium, Switzerland and United States compete with England in every other country and amongst themselves. In the Russian market the high duties (about 40 per cent.) on copper rollers for calico printers effectually prevent English imports.

FIRM No. **238.** Makers of Heavy Machine Tools.

Some years ago we were able to export machinery to the United States. Their tariff has long stopped the possibility of any business. We are now asked to tender but we never receive an order; our tender is only used to regulate their prices.

FIRM No. **1,128.** Manufacturers of Rolling Mills and Engines, Forging Presses, &c.

Three years ago we lost a big contract for a forging press for the United States. We had some years previously supplied the same firm with similar machinery and on the present occasion we lost the order simply owing to a very high protective tariff of 45 per cent. on this class of machinery. The value of this contract was about £60,000. It is difficult to say in our class of machinery exactly what reductions of the tariff would enable us to compete successfully but in spite of our high rates of wages and short hours of labour our opinion is that on an open market we could generally compete successfully. 981

G. AND W. LOWE, 169, ARUNDEL STREET, SHEFFIELD; Machine Knife Manufacturers.

The tariff in Holland is so severe that we allow an extra 10 per cent. in order to hold the trade. In Germany and the United States we have lost an extensive trade, being totally excluded by tariffs. Tariffs have reduced our trade to half its former size.

FREEMAN'S EMERY WHEEL CO., 16, JOHN DALTON STREET, MANCHESTER; Manufacturers of Emery Wheels, &c.

The tariffs imposed by the United States are altogether exclusive, and the German and Belgian tariffs are sufficiently high to reduce our profits to a minimum as we producers and not the consumers have to pay the tariffs.

Effect of Foreign Tariffs

Industrial Engineering. *Agricultural Implements*

982 J. Backhouse, Whitchurch, Hants; Machinist and Agent for Agricultural Implements, &c.

I am principally connected with farmers who are suffering from severe and unfair competition in the growth of their productions through the excessive tariffs placed against them by foreign countries, the consequences of which are felt by all who have dealings with them. I trust that some scheme may be formed to remedy the one-sided trade now existing.

Blackstone & Co., Ltd., Rutland Engineering Works, Ryhall Road, Stamford; Engineers, Agricultural Machinery Manufacturers, &c.

Our export trade has suffered through tariffs in France and Germany in particular where machines are now being manufactured on English patterns and we are practically shut out. The tariff of the United States is prohibitive as regards articles of our manufacture and we have sent nothing there during the last 25 years.

The Cooper Steam Digger Co., Ltd., King's Lynn; Engineers.

Owing to the tariff in foreign countries such as Germany, France, United States, &c. we are unable to export or can export only certain parts of machines which are covered by patents, the other parts being manufactured in the country.

983 J. Cooke and Sons, Lindum Plough Works, 53, Monks Road, Lincoln; Agricultural Implement Makers.

Our export trade has suffered from foreign tariffs. We have given up trying to do an export trade because the Americans and Germans are able to manufacture and sell ploughs &c. under our cost of production.

R. Hunt & Co., Ltd., Atlas Works, Earls Colne; Agricultural and General Engineers.

We are practically shut out of Europe with the exception of Holland and Belgium. Formerly we did a large business with Germany, France and Russia, and a nice trade in the smaller countries.

W. Johnson and Sons, Leeds, Ltd., Armley, Leeds; Engineers and Agricultural Machinery Manufacturers.

We manufacture for home, foreign and Colonial markets but our experience has been during the last 10 years that our foreign trade has been practically entirely cut off through adverse tariffs. Fortunately on the other hand our Colonial trade has increased and about taken the place of the trade which was formerly done with foreign customers. Ten years ago our output was 65 per cent. home trade, 30 per cent. foreign and 5 per cent. Colonial. During the last two years our output has been about 65 per cent. home, 35 per cent. Colonial, and foreign trade nil.

984 Martin's Cultivator Co., Lincolnshire Iron Works, Stamford; Agricultural Engineers.

American surplus goods are dumped here but their tariff prevents us retaliating and doing any business in the United States. Canada also prevents us doing business by her patent laws which nullify the preference of 33⅓ per cent.

Ransomes, Sims and Jefferies, Ltd., Orwell Works, Ipswich; Agricultural Engineers, &c.

Our trade in Austria-Hungary has been ruined by the tariff imposed on our goods there. The German trade in threshing machinery has also been seriously affected by the increased duties. Our Russian trade in ploughs has almost entirely gone owing to the tariff.

Robey & Co., Ltd., Globe Works, Lincoln; Engineers and Manufacturers of Agricultural Machinery, &c.

Our trade in Germany and Austria-Hungary has been gradually diminishing during the last 20 years owing to the operation of excessive tariffs in those countries. In Germany, which was formerly one of our best markets, the protective tariff has enabled the German manufacturers not only to build up and secure their home market but also to provide formidable competition with English manufacturers in neutral markets like Russia. Austria-Hungary in which at one time we did a very large trade has practically driven us out of its market by hostile tariffs.

985 Firm No. **143.** Agricultural Implement Maker.

The duties on the continent and in United States absolutely stop my trade. I am considering the question of getting my machines made abroad.

Firm No. **486.** Agents for Agricultural and General Engineering.

My export trade has been very bad for the past two years. Whether the tariffs of other countries are the cause of it I am not clever enough to say. Trade in threshing machines and portable engines exported to Germany 20 years ago was very large and now is extinct. If the duty were removed this trade would go up with a bound for the English are preferred.

Firm No **681.** Manufacturers of Agricultural Tools and Knives for Machines.

The McKinley tariff caused us great loss of trade—but the class of goods which we used to supply is still made in this country the only difference being that instead of getting a good article they pay more for the commonest quality (almost useless) that can be made. We do not think Americans have attempted to supply goods such as we used to supply before the McKinley tariff. The only result of foreign tariffs is that the buyers pay more and get a commoner quality.

Firm No. 764. Agricultural Engineers. 986

Our experience is that our trade with the continent of Europe has been very largely curtailed owing to the following three causes combined, viz., freight, duty and competition of continental makers.

Firm No. 884. Manufacturers of Agricultural Machinery, &c.

The most notable instance of our export trade having gradually dwindled away to vanishing point is that of Austria-Hungary where the duty 20 years ago represented approximately 8 to 10 per cent. The duties have gradually increased and in proportion to the increase in duties our trade and prices have decreased. The existing duty on portable engines represents 20 to 23 per cent. upon the nett f.o.b. price and it is now proposed to raise the duty to about 27½ to 32½ per cent. upon the nett price. The explanation of this is that the Hungarian Government commenced the manufacture of portable engines and threshing machines at their railway works, and their main object was to eliminate competition in their own country. Practically the only English firm doing business there is one which has established works in Vienna to overcome this difficulty. The Government are also giving railway facilities and bounties to their manufacturers to compete with us in Russia and other neutral markets and thus our foreign competitors are doing a large trade, in Russia especially. In Germany the duty on portable engines represents about 15 per cent. upon the net cost of the engine. Threshing machines pay a duty of approximately 6 per cent. The proposed new German tariff whilst it leaves the engines as at present would increase
the machine duty to about 18 per cent. which would militate greatly against our trade, in fact we find it 987
increasingly difficult every year to do German business not only owing to the duties but also to many vexatious Government regulations and the patent laws. In case the Germans are able to drive us from their markets there is every reason to believe they will quickly invade our home market. They are now invading our Colonial markets. In Italy the trade is restricted owing to the high duties. The local manufacturers in our trade are not important and we believe that in comparison with our foreign competitors we do a reasonable proportion of the trade in this country but the fear is that as the duties have been gradually increased from 1 per cent. ad valorem to 12½ per cent. if this rate of progression of duties should continue it would at no distant date close the market. We are totally unable to do business with the United States of America on account of the high tariff, 45 per cent. ad valorem.

Firm No. 1,011. Agricultural Engineers, &c.

Our export trade has for years past been on the decline in countries where protective tariffs exist and more especially where the duties have been periodically increased, as is the case with Germany and Austria-Hungary. The high tariff existing in the United States prevents us doing any business there.

Firm No. 1,303. Agricultural Engineers.

Our trade has suffered in recent years from the operations of the tariff especially in Germany. Our 988
class of goods suffers from the high tariff in Austria-Hungary, now ruling at 20 per cent. to 23 per cent. on portable engines; it is proposed to raise it to 27 per cent. or 30 per cent. which would prohibit trade in our class of goods.

Firm No. C 1,744. Agricultural Machine Manufacturers.

Prior to the McKinley tariff we supplied large quantities of hoes for the States. These have now considerably fallen off no doubt owing to the high tariff, similar goods being made on that side. As for the competition in the Colonies, American axe makers make large profits in the States and are thus enabled to dump their surplus manufactures in the Colonies at a considerably less price than they could be made for on this side.

Mining Machinery

J. M. Henderson & Co., King Street Engineering Works, Aberdeen; Engineers.

Invitations to tender for nearly all our manufactures are sent to us by users in many foreign countries but the proportion of orders we receive is very small. We can only account for this by the fact that the import duty on machinery going into those countries raises the cost of our manufactures so much above that obtained locally that users nearly always decide against us. We believe that the intrinsic value of certain of our specialities is greater than that of the locally made articles. 989

J. Davis and Son, Derby, Ltd., All Saints' Works, Derby; Manufacturers of Mining Instruments and Apparatus.

In the United States a tariff of 40 to 60 per cent. is charged on surveying instruments, mining instruments and miners' safety lamps, all of which formerly used to be manufactured in Great Britain. Now only a small percentage can face the tariffs and only for those articles favoured by the individual user.

C. E. Hall, 58, Fosters Buildings, 22, High Street, Sheffield; Mining Engineer, &c.

My foreign business is practically gone. The agents I once had are able to buy nearer home and at as good a price. Apart from restrictive duties and on equal terms they could not generally compete. Having established home industries it is natural for them to protect them and in some cases they make good machinery. All foreign countries protect themselves. The only chance we have is by putting on protective duties which will compel them to meet us in the open market. As a rule in machinery we can make a stronger and more workmanlike tool and upon equal terms we could compete, but the only way to secure this is by retaliation.

990 **Effect of Foreign Tariffs**

Industrial Engineering.
Mining Machinery —continued

GRANT, RITCHIE & CO., TOWNHOLM ENGINE WORKS, KILMARNOCK; Engineers and Manufacturers of Colliery Machinery, &c.

We have been told within this last month that we are no longer able to compete in Australia owing to the tariff and freight: eight to ten years ago it was our best market. Were it not for the tariff on our goods to other countries we could compete with any of them.

FIRM NO. **C 539.** Mining Machinery Manufacturers.

Where we have designed the complete installation for coal handling and submitted the designs we have been told that only the patented parts of such machinery will be allowed to be sent from this country and that everything else must be bought in the country to which goods are consigned. This must benefit the manufacturers in that country in so much as they not only have an ordinary manufacturer's profit but also the amount of duty in hand, and it also means that for at least a great part of the machinery we have to take the responsibility of manufacturers with a merchant's profit, as although we may sublet the work we cannot transfer responsibility with such subletting.

Textile Machinery

BARON AND HOGARTH, KENDAL; ALSO AT BELFAST AND GALASHIELS; Reed, Cotton Heald and Wire Heald Manufacturers.

In the United States prior to the McKinley and Dingley tariffs we used to do well but we were then closed out altogether. Goods we had on the way, and which failed to get in before the fixed limit, had to be
991 returned. We told our agents to sell these goods for what they would fetch and it was found that if the goods had been sold they would not realise enough to pay the duty. The French tariff has been against us for some years and the Swedish tariff has kept us out of a country in which we were getting a nice footing 12 years ago. There is also a tariff on our goods in Australia and New Zealand, but as our customers pay this it does not affect us much.

JOHN CROSSLEY, NEW MOSTON, FAILSWORTH, MANCHESTER Manufacturers of Jacquard Machines.

My export trade has suffered mostly through the tariff charges made by Russia which enable Russian machinists to make copies of my machines at less money than I can sell the machines in Russia. The Italian tariff also affects my trade.

JOSEPH GREEN AND NEPHEW, HUNSLET, LEEDS; General Engineers.

Our trade has suffered through the tariffs of the United States, France and Germany in particular. We had an inquiry for 24 textile drilling machines for the North of France and secured an order for one, but the buyers found it cheaper to copy our sample machine and manufacture the other 23 to complete plant and so avoid the tariff. Again we received a good inquiry from the United States for similar machinery but the order was not placed owing to the excessive tariff on our manufactures.

992 FIRM NO. **315.** Lace Machine Maker.

A machine costs from £800 to £900. Some years ago France reduced its tariff from ten to five francs per 100 kilos. A machine weighing 10 tons pays 500 francs (£20) duty in France, which is one of the biggest buyers of lace machinery. This duty does not prevent me from competing as these machines are not built elsewhere except in Germany with whom we can compete on account of superiority of English machinery.

LEE, CROLL & CO., LAWSIDE FOUNDRY, LOON'S ROAD, DUNDEE; Textile Machinery Manufacturers and General Engineers.

Continental machine makers are now making the same machinery as ourselves, and underselling us on the Continent in consequence of high import duties.

E. RUSHTON AND SONS, DAVENPORT STREET WORKS, MACCLESFIELD; Silk Machinery Makers.

We do not think our export trade has suffered by the operation of tariffs except perhaps a little in the case of the United States.

GEORGE THOMAS & CO., 60, DEANSGATE, MANCHESTER; Engineers and Exporters.

In nearly all countries import duties provide sufficient protection to make it very difficult to obtain orders and in many cases they are absolutely prohibitive so that in order to do a business and meet existing
993 conditions one has to cut prices fine and be satisfied with a very small percentage of profit. But even this is better than nothing where for years one has held the clientéle and cannot well run the risks of going over into other businesses. The tariffs in the continental countries play a great part in the yearly increasing difficulties for selling British machinery amongst weavers, bleachers, dyers, finishers, and textile printers. I do not say spinners because the United Kingdom can generally hold its own as regards cotton and flax spinning machinery. Notwithstanding there are a few very first-class makers of cotton spinning machinery on the continent (Switzerland, Germany and France). In woollen and worsted machinery, both spinning and weaving, they command the market.

WHITEHALL AND CREWE, THOROTON STREET WORKS, NOTTINGHAM; Lace Winding Machinery Manufacturers.

Our trade relies on the progress of the lace trade, the latter being shut out from other countries by most exorbitant tariffs. For heaven's sake let us have fair play and wake up.

FIRM NO. **214.** Engineers, &c.

Last year we sent to the United States some samples similar to cotton spinners' springs and plates but the Customs duty was so high as to be almost equal to the value of the goods. Of course this debars us from sending this class of goods to the United States. We have shipped a lot of them to the Continent.

Firm No. **686.** Manufacturers of Wire, &c. 994

Since the McKinley tariff and the formation of a trust we have been unable to export card-cloth. In France since the Méline tariff one French firm has supplied all France and has dumped its card-cloth in Germany, Holland, Belgium, Austria and Russia. Latterly we have improved our methods of manufacturing card-cloth and can compete in above-named countries but not in France. As we purchase our felts for above manufacture largely in Germany free trade is a necessity to us.

Firm No. **755.** Makers of Textile Machine Rollers and Machine Tools.

A tariff against our goods fosters their production in that country. The increasing tendency of foreig countries to raise their tariffs makes it more difficult to secure orders.

Firm No. **774.** Textile Machinists.

Our export trade is suffering by our being handicapped by the amount of the duty and freight in foreign countries on textile machinery.

Firm No. **976.** Engineer.

For some years I was doing a small but regular business in the Hawaiian Islands. Since these Islands
came under the United States this business owing to their high tariff may be said to have ceased. I meet with
competition in France, Germany and Belgium. Owing to their import duties engineers are making machines 995
which are an exact copy of mine and naturally are able to undersell me in the countries mentioned.

Firm No. **1,067.** General Engineers.

Our export trade has suffered very severely by the operations of the tariffs in certain countries. In America about 18 years ago we were doing a very large export trade in machinery and wire but the high tariff, 45 per cent. ad valorem, has completely shut us out. A reduction of 20 per cent. would enable us to compete successfully there. At one time we did a very good export trade to France in our special wire-covered rollers and certain machines, but tariffs were raised and now some home makers make this special wire at a price very difficult to compete with, and the rollers we can no longer supply as the duty makes it impossible for us to compete. The duty is charged according to weight, and on wire amounts to about 20 per cent. on the value, and on the rollers about the same. A reduction to 10 per cent. on the value would considerably improve our export trade to France. In Germany the duty is also charged according to weight. It is not so high as in France but we have much keener competition to meet, especially in wire and machinery. The duty on the latter amounts to about 8 per cent. on the value and we are able to do a good business at present but if the duty should be doubled, which is probable, our export business would be very seriously affected. The tariffs of Russia and Italy are very high, but as there is no competition we are able to do a fair amount of business in these countries.

Firm No. **1,329.** Textile Machinists. 996

We used to employ about 100 men for the Russian market but the duties have been so increased for the last 10 or 15 years that we cannot find work for one person for that market. This also applies more or less to the Continent.

Firm No. **1,401.** Textile Machinery Manufacturers, &c.

In recent years the tendency of foreign countries has been to increase their tariffs to our prejudice In America where the wages are higher the competition is keen in textile machinery owing to the high duty of 45 per cent. ad valorem charged on machinery imported into that country.

E. Ashworth, Collyhurst, Manchester; Manufacturer of Gas Engines and Textile Machinery.

Our export trade with the United States for carding engines is practically made impossible by the duty of 45 per cent. on the machines and on the packages and labour involved in packing.

As makers of textile machinery for flax and jute we suffer from the heavy duties Continental countries now impose on this class of machinery thus enabling their own makers to make all they require and not taking it from this country as formerly, but we do not see we can complain of this; they have a right to make what they like.

Firm No. **2,766.** Textile Machinery Manufacturers. 997

Before the Franco-German war we sent large quantities of spinning and carding machinery to France; between 1870 and 1880 the amount diminished rapidly, and we now send comparatively little and have to accept prices which when packing charges and freight are taken into consideration are considerably below those we can get in this country. In Germany, Austria and Russia we are met by German competition and are asked to accept lower prices to meet it.

Firm No. **4,827.** Card-cloth Manufacturers.

The last French tariff, by which a duty amounting to over 20 per cent. of the value of the goods was placed on card-cloth, has hit English trade in a peculiar manner. Card-cloth is an essentially English article. There are a number of manufacturers in this country whilst on the Continent there are only three manufacturers: one in France, two smaller ones in Germany. The tariff in France benefited the French manufacturing firm who were already doing the bulk of the trade in France and enabled them to raise their home prices so much that they could sell at or below cost price in Germany, which is the largest continental market for card-cloth. By this means English trade in felted card-cloth has been successfully ousted from the German market. The English and French cloths are practically equal in quality, the German article is inferior and appeals to only a small section of the trade which sacrifices everything to cheapness. The demand

Industrial Engineering.
Textile Machinery —continued

998 for felted card-cloth on the Continent has largely increased during the last 15 years and is still increasing. The chief outlet is Germany, where we estimate that £30,000 worth is used annually, and Holland and Belgium where about £10,000 worth is used annually. The dumping of the French firm has hitherto been confined to Germany and has very seriously affected our German trade. Provided the French firm were unable to dump into Germany it is safe to assume that English firms would secure at least two-thirds of the demand for felted cloth in that country, whereas we estimate that at present they do not secure one-sixth. In the event of tariff negotiations taking place eventually an endeavour should be made to get the French duties taken off, thus stopping this unfair competition in neutral markets.

Firm No. **6,171.** Makers of Power Looms for Weaving.

Our export trade with Austria, Belgium, France, Germany, Italy, America and Russia has greatly decreased in recent years owing entirely to the prohibitive tariffs put on our machinery by those countries in favour of their own.

Printing and Paper Machinery

Linotype and Machinery Ltd., 188, Fleet Street, E.C.; Engineers.

Our trade suffers from the fact that we lose on each machine exported a profit corresponding to the
amount of import duty, besides which owing to the lower price at which similar machines can be turned
out on the Continent we are not able to obtain anything like the price we get for the same machine in the
999 home market. Owing to the excessive duty on alloys our export trade in metal is practically nil. Though
we have received various inquiries from America regarding certain die presses, we have practically been unable
to do any business with that country owing to the excessive duty of 45 per cent.

The Victory Web Printing Machine Co., Ltd., Edge Hill, Liverpool.

Our trade has suffered inasmuch as we cannot possibly supply machinery to America because of the tariff. Our last transaction with America was some 30 years ago. The expense incurred in getting it in was about half its value.

Bertram's, Ltd., St. Katherine's Works, Sciennes, Edinburgh; Makers of Paper Mill Machinery, &c.

We used to do a considerable business in paper mill machinery in Germany but we cannot get an
order now owing to the Germans making all they want, to some extent influenced by the duty payable on
imported machinery. In France we have been able to do very little business although we have made very
great efforts by circulars, travellers and an office in Paris. We attribute the want of trade partly to pre-
judice leading them to purchase chiefly in their own country and partly to the Customs duty. We have
supplied very little paper mill machinery to the United States but we have frequently had visits from
American paper makers of British origin who would gladly have bought a considerable amount of machinery
from us from time to time but for the enormous duty (45 per cent.) on machinery. We have done a little
1000 business from time to time in Russia, Spain, Portugal, Italy, Belgium, Holland and Switzerland and a con-
siderable business in Norway, Sweden and Finland. In Japan we have done a large amount of business in
paper mill machinery, the tariff there is only 10 per cent.

James Bertram and Son, Ltd., Leith Walk Foundry, Edinburgh; Manufacturers of Machinery for Paper Mills, &c.

Our export trade to foreign countries has suffered much in recent years. Owing to the tariffs of Germany, Austria and France this trade which 20 years ago was quite an extensive one has practically ceased except in some small specialities, and with the United States the tariff has always been prohibitory. Sweden since it had a tariff on machinery is more difficult to trade with, and Swedish engineers are getting some of our special business.

Firm No. **2,143.** Makers of Paper Machine Wire Cloths.

The tariff imposed by the United States has excluded all our goods. It is equal to 50 per cent. If it were 25 per cent. we might have a chance. In Germany we cannot do business owing to the high tariff and low rate of wages prevailing.

Laundry Machinery

Thomas and Taylor, Ltd., 99, Fonthill Road, London, N., Works, Stockport; Laundry Engineers.

1001 For the past 20 years our export trade has been gradually dropping and is now not worth consideration. The duties imposed by protected countries entirely shut out our productions. Our foreign agents are now either buying goods made in their own country or importing American goods, especially in South Africa.

Firm No. **5,158.** Laundry Machinery Manufacturers.

If there were no duties on the Continent England would do a large trade there in mangles. The Americans have the trade, supplying a very cheap rubber wringer which has taken the place of the mangle.

S. H. Johnson & Co., Ltd., Engineering Works, Stratford, London, E.; Mechanical Engineers, Chemical Plant Manufacturers, &c.

In France, Spain and Belgium in spite of the tariffs we still do a little but only a small fraction of what we might do if the tariffs in these countries were not against us. In Germany, United States and most other foreign countries the tariffs affect us so that it is nearly impossible to do foreign trade and year by year it becomes more difficult. Twenty-seven years ago we determined to push our business in the United States, manufacturing here and selling the machines through a branch in New York. As nothing of the kind was known or used in the United States, and we were protected by our patent rights there, we were enabled, notwithstanding the heavy duty of 35 per cent. ad valorem, to sell our machines and rapidly made a large and profitable business which the higher rate of wages paid in the United States helped us to keep after the term

1002 of our patent had expired. Then came the McKinley tariff and an increase on our goods to 45 per cent. We still sold in spite of the tariff but with gradually increasing opposition and diminishing profits until five years ago when we saw it was useless and sold our interests in the United States business at a low price. The business is still carried on there but all the work is manufactured there and we have lost our American trade in consequence of the operations of the tariff. Formerly this trade was quite as large as our English home trade. We are now looking with apprehension to the probability of American competition. The loss to the British workman in wages on this American business alone we estimate at £20,000 per annum.

Sewing Machines

Douglas Bros., Kingswood, Bristol; Mechanical Engineers, &c.

We are makers of bench fittings for the London branch of a large sewing machine company of America. These fittings being better than those in use in the United States a complete set has been sent over but on account of the duty we cannot hope to supply them, and as soon as they have got the plant ready for the making of these fittings for themselves we expect to lose our home trade with them. They will lay down plant to make for their own requirements and the surplus no doubt will be sent here.

Smith North and Priestland, Ellis Street, Holloway Head, Birmingham; Sewing Machine Manufacturers.

We have sent samples of work and patterns to most foreign countries and in nearly every instance the many small stamp fees and charges, including the Custom duties, either allow us to do no business or only a little with our specialities. 1003

Miscellaneous

A. Ransome & Co., Ltd., Stanley Works, Newark-on-Trent; Saw Mill Engineers, &c.

Our export trade has fallen off in recent years, more especially as regards machines supplied to private firms in Australasia, South America and some European countries.

Firm No. C 305.

In 1881–3 my firm endeavoured to introduce ice-making machinery into the United States when we were met by a pretty stiff tariff of 40 per cent. on the finished iron work and 60 or 65 per cent. on the finished steel work of the machines with lower rates on the cast-iron portions, and the machines had to be pulled to pieces for the Customs to get at the several parts. The gun-metal fittings were also subject to similar duties. These duties entirely shut us out of the market at the same time that the States were sending all kinds of machines into this country free of duty.

Firm No. 505. Manufacturers of Sugar Machinery, &c.

Our export trade has suffered severely. There is now 45 per cent. ad valorem duty against us into the Hawaiian Islands, Puerto Rico and the Philippines, in all of which countries we formerly enjoyed a regular and satisfactory trade. Exports to the Continent have suffered from the same cause but not to the same extent as the duties are not yet so high as those in the United States. We are sure to suffer in Cuba on account of the recent reciprocity treaty with the States. 1004

Llewellins and James, Ltd., Castle Green Engineering Works, Bristol; Brass and Bell Founders, &c.

Our trade has suffered indirectly through foreign tariffs. Owing to the McKinley tariff 28 tinplate works in South Wales were closed, and by the dismantling of nearly all the iron works in South Wales our trade fell off to a very serious extent and the lack of prosperity in the remaining few steel works has reduced their demand for our high class work to a mere trifle, while thanks to the tariffs on the Continent and elsewhere the agricultural engineering trades have been so much crippled that our business with them has almost ceased. Again, we made and supplied plant on a large scale for the six Bristol sugar refineries and the two in Plymouth all of which have been closed in consequence of the bounties; and we also supplied the West Indian merchants in this city with plant for their friends and correspondents in the West Indies—but there is not one firm now left in this city, which before the bounties was perhaps the largest sugar importing centre in Great Britain. We have also lost nearly all our trade with the West of England cloth mills and dye works for the same reason.

Firm No. 4,629. Leather Machinery Manufacturers.

We have suffered a loss of trade through tariffs. In some cases our machines were copied and then we had to compete with the country manufacturing same inside the tariff, which meant we had to deliver our machines with duty added at the same price as our competitors there or lose our trade. 1005

W. Johnson and Sons, Leeds, Ltd., Armley, Leeds; Engineers.

We at one time did a large business with the United States in brick-making machinery but during the past few years this has been entirely wiped out owing to adverse tariffs. We have also done business in all foreign countries in past years but have not done any recently.

G. S. Richmond, Robinson Street, Llanelly; Engineer's Agent.

My export trade in tinplate works specialities suffers from the operations of tariffs principally in America, Germany and France. Single machines have been bought for the purpose of copy and then made and sold cheaper than I can with tariff added. This applies more to America and Germany.

Davidson & Co., Ltd., Sirocco Engineering Works, Belfast; Makers of Machinery for the Manufacture of Tea Leaf, &c.

Our export to the United States with 45 per cent. import duty cannot be operated except at a loss and this too although our manufactures are patented articles.

Effect of Foreign Tariffs

Industrial Engineering. *Miscellaneous —continued*

1006 W. & T. Avery, Ltd., Soho Foundry, Smethwick, Birmingham; Weighing Machinists.

For some time we have supplied personal weighing machines to Denmark but the tariff has now fostered a local maker who imitates our patterns and competes successfully with the tariff against us. To France we formerly did a fair business in automatic weighing machines and in coin-fed machines but the tariff fostered local makers and gradually shut us out. The German tariff entirely shuts out our automatic grain-weighers and has developed several large local factories. These German makers are now invading England at prices leaving a bare margin of profit which will shortly disappear as they are content with a contribution towards their standing charges. In Canada we formerly did a large trade in agate bearing scales and counter machines. This trade has entirely gone through the fostering of local firms by the tariff. We are in consequence about to start a factory at Montreal.

Granville Typewriter Co., 28, Martin's Lane, Cannon Street, London, E.C.; Typewriter Importers.

A duty is levied on typewriters in nearly all countries, especially protected ones, notwithstanding the fact that they do not manufacture typewriters themselves. In sending machines to these countries the price has generally to be reduced in order that the business may be done, and to cover the loss on duty paid by the customer. This of course does not apply to America. Very few machines are sent there, as it is the country of origin of typewriters.

1007 Firm No. **196.** Manufacturers of Safes, &c.

Excepting in Australia and New Zealand we do not think that in any country, even if they took the tariff off, we could compete with their home makers. We might possibly do a trade with Spain and Portugal if they reduced the duty, or even put us on an equality with the French. The duty is charged in those countries on the weight, and our safes being much heavier than those of foreign make we are put at a considerable disadvantage in that respect.

Employment

(f) Employment

Question 6 (Form I.): *Is your trade subject to adverse competition from foreign countries in consequence of any difference in the rates of wages, in the hours of labour, or in other respects?*

Question 7 (Form III.): *Has the importation of foreign made goods into British markets affected the conditions of employment in your trade?*

1008 Besides the firms whose replies are printed below three firms state that they are not aware of any loss of employment owing to longer hours and lower wages abroad, while 170 firms state in general terms that they have suffered owing to longer hours and lower wages abroad, some also pointing out the consequent lower cost of production abroad which encourages dumping. Many of these firms also point out the deleterious consequences of the restrictive attitude of our Trades Unions.

Structural Engineering

Firm No. **1,081.** Engineers, Ironbuilders, &c.

We pay 38s. for 53 hours per man; Germany, as far as we can ascertain, for similar work pays 27s. to 30s. and the hours are longer; Austria pays rather less wages and longer hours are worked; United States pays 42s. to 44s. for 60 hours' work. But our workmen produce quite 50 per cent. more per man than Germany or Austria and 10 per cent. more than the United States. Some of our men went to the States to get the higher wages and all but one came back, finding 38s. here better than 44s. there on account of the high prices consequent on protection.

Firm No. **C 913.**

In Germany and Belgium the item of salaries for management is enormously below that ruling in
English works. I do not think, with the exception of Krupp's General Manager, that there is in either country
1009 any salary exceeding £1500 a year and salaries of £1000 you can count on the fingers of one hand. The
same rule applies to Department Management and clerical salaries.

Firm No. **1,020.** Mechanical Engineers, Iron and Brass Founders.

We are of opinion that our trade is subject to adverse competition in respect to the rates of wages, hours of labour, restriction of output, &c., which obtain to a large extent in this country as the result of trades unions, &c., thus artificially forcing up wages out of proportion to the value of the article produced.

Joseph Richmond & Co., Ltd., 30, Kirby Street, Hatton Garden, London, E.C.; Engineers.

Mechanical labour in Germany is far cheaper than British and in most competitive countries they have not the same difficulty to contend with in the shape of labour unions as we have in England. A good mechanic in this country will not work under 10d. per hour. In Germany it is possible to get the same labour for 5 marks (*i.e.*, 5s.) a day.

Joseph Richmond & Co., Ltd., Watermoor Foundry, Cirencester; Engineers.

We have been informed from a reliable source that Belgian moulders work 10 hours per day and part of Sundays for 24s. per week.

J. Shewell & Co., Albert Hill, Darlington; Makers of Bridge Work, Girders, Roofs, Boilers, &c. 1010

We have no special or private information but from general information which is common knowledge the hours of labour are longer and wages lower in competing countries. We require free trade in labour in this country.

Firm No. **1,506.** Manufacturers of Mining Machinery.

In structural material for England, Germany and Belgium have advantages in competition, the lower wages and longer hours of labour overcoming cost of transport, and in certain sales abroad foreign competition is assisted by a bounty to steamer lines from foreign countries.

Glengarnock Iron and Steel Co., Ltd., 127, St. Vincent Street, Glasgow; Manufacturers of Joists, Girders, &c., in mild steel.

In Belgium and Germany wages are lower than in Great Britain, and the hours of labour are longer which increase the output from the rolling mills considerably. Although raw materials cost in Belgium and Germany (in normal times) much the same as in Great Britain, Continental manufacturers are assisted greatly to get their products to the shipping ports by special low rates of transit owing to the railways being owned by the State.

W. F. Smithdal, Perseverance Foundry, Basford, Notts.; Manufacturer of Cast Iron Girders, &c. 1011

The difference in wages between Nottingham and Belgium is nearly 40 per cent. and the hours of labour anything from 15 to 20 per cent. more.

Electrical Engineering.
Machinery

Clarke, Chapman & Co., Ltd., Victoria Works, Gateshead; Engineers and Electricians.

Undoubtedly the lower rate of wages and the longer hours worked in Germany place them in a more favourable position than manufacturers in this country. Whilst wages are higher in the United States the workmen there are not subject to the tyranny of trade unions preventing them from working to their fullest ability and making the best use of all machinery by men working more than one machine each.

The General Electric Co., Ltd., 71, Queen Victoria Street, London, E.C.

Rates of wages do not affect our manufacture much except in very low grade articles. Skilled labour on the Continent, in towns such as Berlin and Frankfort, is paid now up to 5s. to 6s. per day which differs little from what we pay. Hours of labour give the foreigner a great advantage; they never work less than 60 hours per week, often 66 hours. We work 53 hours. This means, for us, expensive machinery standing idle.

Newtons Limited, Electrical Works, Taunton; Manufacturers of Dynamos, &c.

1012 No doubt the longer hours of working and lower wages prevailing in foreign countries and fewer official restrictions and regulations for factories tend to reduce the cost of manufacture in these countries and hence give the foreign manufacturer an advantage. Where we chiefly feel this is in the case of tenders for machinery for municipalities where the British manufacturer is tied down to certain definite rates of wages and restrictions of all kinds in the interest of trade unions and yet too often the contract is given abroad where it is impossible to insist on or obtain these restrictions. It is possible that in some cases abroad trained men are paid as much or even more than our trained men, but it is possible for foreigners to employ a few highly trained and paid men to supervise the work of unskilled labour with the result that the average wage is very low. We are unable to do the same in this country by the action of the trades unions and again unskilled labour here is better paid than it is abroad.

Rhodes Electrical Manufacturing Co., Ltd., 70/1, Bishopsgate Street Within, London, E.C.; Manufacturers Electric Machinery, Motors and Dynamos.

Our trade is on the increase and it is difficult to say for certain what amount of employment we have lost through the import of goods we could have manufactured. We however lost contracts (which foreigners secured when we were the lowest next tenderers on the list) to the tune of 5 per cent. of our turnover. Our trade is hampered considerably through having to pay higher wages than foreign competitors; further our output is restricted by Trade Unionism preventing men turning out the full amount of work which they would otherwise be able to do. 1013

Sandycroft Foundry Co., Ltd., Hawarden, near Chester; Mining and Electrical Machinery Manufacturers.

Our trade is subject to severe competition from Germany and America in particular. In the case of Germany longer hours are worked and the rates of wages are lower than in this country. In America we believe the wages are as a rule higher than in this country, but this appears to be compensated for by the longer hours worked. We admit too that the system of standardising of work so much practised in American engineering shops gives them an advantage over the English system of carrying on varieties of work in one factory.

W. C. Mountain, Scott and Mountain, Ltd., Close Works, Newcastle-on-Tyne; Electrical Engineers.

There is no doubt that the German and Swiss have great advantages over English manufacturers owing to the fact that their wages are considerably less per week than our men get and further that the hours of labour are considerably longer. Wages to fitters and turners in Belgium are only about 24s. to 28s. per week whereas we are paying 38s. per week as a minimum. In addition to this our men work 9½ hours per day, whereas in Belgium we understand that they work 11 to 12 hours per day.

Electrical Engineering. *Machinery —continued*

1014 Hugh J. Scott & Co., Ravenhill Avenue, Belfast; Manufacturers of Electric Dynamos and Motors.

From all the information which we can gather we find that our wages are from 50 per cent. to 75 per cent. more than they are in Germany and we also understand that they work much longer hours.

Simpson Bros., Hapton, near Burnley; Electrical Engineers.

Our trade is adversely affected by foreign competition as we understand that the rates of wages are less and hours of labour are longer in France and Germany. We are frequently asked to tender for machines, &c., and afterwards hear that the goods have been ordered from the Continent at a less price than our quotation, at the same time our tender has been at about actual cost to us, or less.

Firm No. **956.** Electrical and General Engineers.

We have ascertained by actual investigation by a Commissioner whom we despatched to Germany
towards the close of 1901 that the rates of wages paid by our principal Continental competitors were from
25 to 33⅓ per cent. less than our rates of wages in Lancashire, whilst the hours of labour averaged about
60 per week as against our 50 hours. The obligation imposed in municipal contracts generally with regard
to wages and hours of labour for work done in this country entails therefore an increase in actual cost of
the average output of an electrical factory of from 10 to 15 per cent. We submit as a sample of such
1015 municipal labour clauses that employed by the London County Council, the exceedingly onerous terms of
which are imposed upon the British manufacturer but are practically inoperative in the case of his foreign
competitor. The home manufacturer suffers in competition with the foreigner by the requirements of the
Home Office and the obligation incurred by the working of the Employers' Liability Act.

Firm No. **987.** Manufacturing Electrical Engineers.

The lower rate of wages and the longer hours of labour subject us to adverse competition. The rate of wages is very often not more than half the rate in this country, the hours of labour are longer and many articles are made abroad in small workshops and at the homes of the employees under conditions which amount practically to sweating and no administration or workshop expenses are incurred.

Firm No. **1,527.** Electrical Engineers.

We suffer considerably, as owing to shorter hours of labour and higher wages in this country coupled with higher cost of raw materials, it is quite impossible for us to compete in price even in our own country with the cheap German machines.

Cables, Telegraphs, &c.

Hooper's Telegraph and Indiarubber Works, 31, Lombard Street, London, E.C.; Manufacturers of Electric Cables, Mining Cables, Indiarubber Insulating Materials, &c.

1016 From the differences between the cost of materials and the finished articles being small compared with our out of pocket expenses we infer that labour must cost less for the same output and also their standing charges for coal, rent, rates, taxes and staff must be less than ours, our works being situated in the Millwall Docks, London, E.

Firm No. **1,479.** Electrical and Telegraph Engineers, &c.

The comparison of the rates of wages scheduled by the London County Council and the rates of wages ruling on the Continent as shown in various blue-books prove that in many instances electrical employees work for less wages and longer hours than in this country.

Accessories

Firm No. **C 99.**

I have introduced new patterns on the market and have always been able to hold my own. Up to a few years ago I have had 20 and 30 men and boys working for me. I have brought out 10 or 12 apprentices that have turned out good tradesmen. But on account of the foreign competition I had to close my works as I find that English goods are not wanted and it is impossible for me to supply the goods at the price my customers can buy from foreign sources.

Firm No. **C 1,593.**

1017 In one branch of the electrical trade alone, the cabinet making and wood working and polishing, there is sufficient work in this country to employ 10,000 hands, which is entirely in the hands of Germany.

Marine Engineering. *Shipbuilding*

William Beardmore & Co., Ltd., Govan Yard, Glasgow; Shipbuilders and Engineers.

From the beginning of steam navigation our firm has built numerous steamers for the principal foreign countries, but since the introduction of bounties, subsidies and fiscal concessions many of these nations have commenced to construct their own ships and machinery, so that our foreign business as shipbuilders has practically terminated. We understand that with the exception of the United States, the rates of wages are lower and the hours of labour longer for all foreign countries.

Day, Summers & Co., Ltd., Northam Iron Works, Southampton; Engineers and Shipbuilders.

There is no doubt that our trade suffers from foreign competition owing to foreign workmen being paid lower rates of wages than is sanctioned by English trades unions and also through their working longer hours; moreover the way in which English trades unions endeavour to restrict the output and also their unfortunate system of endeavouring to bring the best workmen down to the level of the worst, thus offering a skilful workman no encouragement to excel at his trade, has in our own opinion a most injurious effect on British trade.

1018 FIRM No. **1,564.** Marine Engineers.

The shipbuilding and engineering industries in this country have suffered and now suffer in consequence of (1) rates of wages in foreign countries being lower than in Britain and men being paid according to their worth; (2) working hours in foreign countries being longer; (3) absence of the interference of trades unions such as employers in this country have to contend with in: (a) standard rates of wages in certain trades whereby inferior workmen must be paid more than their worth, (b) management of workshops, (c) restrictions in the matter of piece work versus timework, (d) restrictions as to overtime, (e) restriction of output, (f) in a number of trades men will not get employment unless they are members of a trades union.

HEPPLE & CO., LTD., WAPPING STREET, SOUTH SHIELDS; Shipbuilders, Engineers and Dock Owners.

The rate of wages and hours of labour are largely responsible for extra cost in this country. We have frequently lost orders for tugs owing to the amount of duty payable by the purchaser on taking the finished vessel into Russia in particular.

MURDOCH AND MURRAY, PORT GLASGOW; Shipbuilders.

Our trade is very severely handicapped by the operation of the Compensation to Workmen's Act to the amount of 17s. 6d. per £100 of wages.

RUSSELL & CO., PORT GLASGOW; Shipbuilders.

1019 Competition is most felt from the continent of Europe and the United States of America. In the former we believe the rate of wages is lower and the hours of labour are longer than in this country; but in the United States these advantages do not apply.

A. RUTHERFORD & CO., NEPTUNE WORKS, BRIDGE STREET, BIRKENHEAD; Shipbuilders, Engineers and Boilermakers.

We consider that the lower rate of wages and longer hours worked enable foreign countries to manufacture goods at a less rate than it is possible for them to be manufactured here. The cost of carriage ought to make up the difference but it does not do so.

FIRM No. **3,879.** Ship and Yacht Builders.

We consider that trade organisations and the regulations of the Factory and Workshops Act and Employers Liability Act undoubtedly tend to enhance the prices of home manufactures.

WOOD, SKINNER & CO., LTD., BILL QUAY, NEWCASTLE-ON-TYNE; Steel and Iron Shipbuilders.

Our trade is subject to adverse competition from Germany, Norway, Holland, Belgium and in a
smaller degree France by reason of lower wages, longer hours, less trades union interference and fewer legal
restrictions, also in France by a heavy bounty. Workmen's wages in our trade in Norway are said to be 30 per
cent. lower and the hours 11 per cent. longer which together amount to about 38 per cent. in the cost of pro- 1020
duction assuming the men work as efficiently. Ten years ago we could compete successfully with Nor-
wegian shipbuilders and built a large number of Norwegian steamers (34) but now we cannot compete with
them in price.

FIRM No. **690.** Steamship Builder.

In a German and Dutch shipbuilding yard of our size and employing about 100 hands, men and boys, their more skilled platers, riveters and caulkers receive 4s. per day for 10 or 12 hours, against our men for nine hours' day receiving 10s. and not satisfied with that. The labourers in a Dutch yard would have about 1s. 8d. or 2s. 1d. per day against our platers' labourers' 5s. per day. The German and Dutch shipyards are practically model industries where the master is master, but in Great Britain a man not 12 months in the yard can demand any wages he likes and has got to be paid same.

FIRM No. **656.** Shipbuilders, &c.

We suffer from adverse competition principally as regards our sales for foreign markets in rates of wages and hours of labour. We think that shipbuilding costs less here than in France and the United States of America, about the same as in Germany and rather more than in Norway.

1021 FIRM No. **743.** Shipbuilders, Engineers, &c.

Cheaper labour abroad has undoubtedly interfered with our trade as builders of specialities in boats and their machinery. Whereas formerly we supplied these complete they are often now built to our designs and plans with cheaper labour in foreign countries, or the special features only are supplied by us.

LANARKSHIRE STEEL CO., LTD., FLEMINGTON, MOTHERWELL, N.B. Manufacturers of Steel and Sectional Material for Shipbuilding, &c.

Wages in German and Belgian steel works are lower and the hours of labour longer than in this country. Our production is restricted, and our costs consequently increased by dumping, which is made possible by the protection of the foreign home markets and reduced cost of production consequent upon increased output. The feeling of insecurity caused by this dumping prevents the expenditure of capital upon extensions and improvements.

Machinery

ELLIOTT AND GARROOD, LTD., INGATE IRON WORKS, BECCLES, SUFFOLK; Manufacturers of Specialities for Fishing Vessels, &c.

We have competitors in Holland who can undersell us but their capstans must be of the cheap and nasty kind as in several instances where they were fitted a few years ago we have had the satisfaction of

Marine Engineering.
Machinery —continued

1022 replacing them since and competition in capstans has fallen to a minimum. Since fitting propelling engines in
a German boat two years ago we have been unable to do business in these either with Germany or Holland.
What we have supplied are giving every satisfaction but owing to a cheaper rate of pay and longer hours
the foreign manufacturer can undersell us about 20 per cent.

Willoughby Bros., Ltd., Rendle Street, Plymouth; General Engineers, Boilermakers and Iron Ship Builders.

We have no data but believe the hours worked on the Continent are longer than in this country, the wages less, overtime and holidays not counting as here.

Firm **357.** Engineers.

In the engineering trade there is a considerable difference between the rates of wages and hours of labour here and on the Continent and no doubt shortly when foreigners have learned to construct the English type of marine engine this difference will enable them to produce the engines at lower cost than we can possibly do.

Wallsend Slipway and Engineering Co., Ltd.; Marine Engineers.

The direct loss of employment in our establishment owing to importation of foreign goods is not great.
1023 The forgings we now buy from Germany are supplied partly finished, whereas formerly when supplied by
British manufacturers they were generally rough forgings, and to this small extent the employment in our
works may be said to have suffered, but the machinery employed on such rough forgings is now occupied on
other work.

Firm No. **1,023.** Manufacturers of Ordnance and Marine Forgings, &c.

The small difference in the rate of wages and the hours of labour, or other similar advantages which foreign countries enjoy, are not sufficient to make up for the difference at which foreign steel articles are sold in this country, and the loss the British manufacturer would suffer in accepting such prices. British manufacturers should be able to meet every country on equal terms, that is to say on *bona fide* free trade conditions. Imposing a tax on machinery and finished iron and steel goods to exactly the same extent as do our competitive foreign rivals, and varying such tax to meet the changes made from time to time by all foreign countries, in other words, an equally reciprocal tax or import duty to that imposed by foreign tariff walls, would remove all vexatious and unfair foreign competition.

Firm No. **404.** Manufacturers of Chains and Anchors.

Chains were exported freely into Germany some years ago in spite of the tariff. The present high
rates of wages in this country have enabled German makers to almost shut out the better grades of quality,
1024 which they are producing in Germany.

Mechanical Engineering.
Engines and Boilers

Richard Garrett and Sons, Ltd., Leiston Works, Suffolk; Makers of Steam Engines, Boilers, &c.

German makers especially compete severely in Russia, Italy, Austria-Hungary and France in consequence of a difference in wages of from 10 per cent. to 20 per cent. and of longer working hours. They are also aided by preferential cheap railway rates.

H. Jones, 24, Queen Street North, Neath, Glam.; Engineer, Founder, &c.

We do not suffer from foreign competition in consequence of any difference in the rate of wages or hours of labour, but from the great advance in workmen's wages, the rules adopted by trades unions of demanding the same rate for good and bad tradesmen and the encouragement given the workmen to defy the employers to discharge a man who does not suit them without running the risk of having a strike unless the reasons satisfy the trade union officials, which is seldom the case.

Ruston, Proctor & Co., Ltd., Sheaf Iron Works, Waterside South, Lincoln; Makers of Steam Engines and Oil Engines.

We have no reliable data as regards wages but we understand that in America the wages are higher
and in Germany lower than in England. American and foreign workmen work longer hours than ours. The
1025 American mechanics and those from some other rival foreign countries give proof of better training than the
average English mechanic. We consider that the average English mechanic is hampered by insufficient
education and want of breadth of mind.

Yates and Thom, Canal Engineering and Boiler Works, Blackburn.

German make of engines have been delivered in England at much less prices than we could afford to manufacture. We believe that low rate of wages and longer working hours have assisted the German makers in getting the orders.

Firm No. **135.** Engines and Mill Gearing, &c., Iron Castings.

Our trade is subject to adverse competition from foreign countries owing to differences in rates of wages and hours of labour. Particularly is this the case with regard to Russian trade which in our particular line has gone to the Swiss makers of engines.

Firm No. **1,128.** Manufacturers of Rolling Mills and Engines, Forging Presses, &c.

The higher rates of wages and shorter hours of labour in this country are naturally a disadvantage to us in meeting foreign competition and more especially so in the case of municipal contracts in which

1026 frequently stringent clauses respecting rates of wages and hours of labour are inserted which injuriously affect the English manufacturer, whilst the foreign manufacturer who is competing for this contract is entirely independent of these restrictions.

Firm No. **1,094.** Iron Founders and Machine Tool Makers.

The difference in wages is most in Germany and they also work longer hours and for less pay. In America the pay is larger but they work longer hours. Also in America and Germany one man will mind two lathes, two planes and two shapers, and as many as six milling machines, where with us it is one man one machine.

Firm No. **1,333.** Manufacturing Mechanical Engineers.

We do a large trade in machinery for German firms who have mills in the East and when put in competition for such machinery with engineers in Germany we can compete successfully being able to produce at a lower cost. Although wages are lower and hours longer than ours we believe we get a much better out-turn man for man. We may mention that we have sent quite a number of young engineers to German firms abroad as superintendents of mills and factories. Their thorough practical training is found to be more useful than that of highly accomplished technical men.

1027 J. Fraser and Son, Ltd., Millwall Boiler Works, London, E.; Manufacturers of Steel Boilers, Storage Tanks, Steel Pipes.

The rates of wages are lower and the hours worked by the boilermakers on the Continent longer than our men work. This is partly due to the fact that the house rents are lower, the local taxation is less, *i.e.*, the poor rates, borough council rates, &c., and the men live close to their business and so do not have to spend money on railway travelling.

Marriott and Graham, Govan, Glasgow; Boilermakers.

We understand that the boilermakers in the United States work 60 hours per week as against our 54. We do not however think this has any effect in increasing their output.

Stokers and Economisers

E. Bennis & Co., Ltd., Deansgate, Little Hulton, Bolton; Manufacturers of Patent Machine Stokers, Furnaces, &c.

Our men being paid high rates do nearly three times as much work as the foreigner; feed them well, and you can get work.

Locomotives

The Avonside Engine Co., Bristol; Locomotive Builders.

1028 Our export trade is hampered by the German locomotive works paying about two-fifths less wages than we do but on the whole their workmen are not so efficient and it would be fairer to estimate the difference at one-third less, taking also into consideration the longer hours of labour and the freedom from restrictions of trade unions in Germany.

W. G. Bagnall, Ltd., Castle Engine Works, Stafford; Engineers and Locomotive, &c., Makers.

In our opinion the works are better laid out in America; everything is done with the high rate of wages to save labour. The men there turn out probably double the amount of work that our men do and they are well paid for it. The masters let off certain sets of work, such as valve gear, to a certain man. He employs men under him who get about £4 or £5 a week, sometimes more, while the foreman gets as much as £20. The feeling of the masters in this country is against a man receiving excessively high wages and the feeling of the unions is to split the work up among the many. The American working man is more independent. The consequence is that they turn out work cheaper than we do (owing to the fewer restrictions) notwithstanding the higher rate of wages. In Germany with lower wages and longer hours they get more work out of their men than we do because they are under more control. In case of strikes the military are immediately made use of. We may say that in 1897 we worked 50 hours instead of 54. It was promised as a trial and we have found it a great success for many reasons.

North British Locomotive Co., Ltd., 17, Victoria Street, Westminster; Locomotive Engineers.

1029 Our trade has of recent years suffered from the competition of Belgian manufacturers in the supply of locomotives to Egypt and also of German manufacturers in the supply of locomotives to India, Spain, Italy, Argentine Republic and elsewhere and we have reason to believe from statements published from time to time that the wages paid are considerably lower and the hours of labour considerably longer in those countries than here.

The Vulcan Foundry, Ltd., Locomotive Works, Newton-le-Willows, Lancashire; Engineers.

In Germany wages are much lower and hours of labour longer. Freights to the coast for export are greatly below ours; also freights to the Colonial ports. America is also much better placed as regards rail and shipping freights.

Gas Engineering

Firm No. **889.** Gas Meter Manufacturers.

The rate of wages being considerably less in some parts of the Continent of Europe must necessarily subject our business to adverse competition. The railway rates on the Continent and in this country are also much more favourable to foreign manufacturers and enable them to compete successfully where otherwise they would not be able to do so.

1030 **Employment**

Mechanical Engineering.

Castings, Forgings, &c.

FIRM No. **1,489.** Engineer.

We have had one forge practically idle during 1903 which has led to a loss of wages of about £1,000. This was due to the importation of goods we could have manufactured.

DARLINGTON FORGE CO., LTD., DARLINGTON ; Manufacturers of Machined Iron and Steel Castings, &c.

The wages of the following classes of workmen are as below, whilst the hours of labour are greater in Germany :—

	England.	Germany.
Forgemen	20s. to 30s. per day.	10s. to 15s. per day.
Steel melters	10s. to 15s. per day.	6s. to 8s. per day.
Moulders	8¾d. per hour.	4d. to 6d. per hour.
Fitters, turners and mechanics	7d. to 8¾d. per hour.	4d. to 6d. per hour.

FIRM No. **619.** Manufacturers of Castings and Wheels for Railways and Mines.

1031

We suffer to some extent from the efforts of trades unionism to restrict output and regulate piece prices. In the United States we know that each workman turns out a larger number of wheels per day with no more efficient or less efficient appliances than we possess here and in consequence, although the workman's daily wage is higher, the manufacturer turns out each article at a lower manufacturing cost. Generally it may be said that the United States workman turns out whatever his industry and ingenuity suggest. In this country the ingenuity is too often exerted in the direction of limiting the output as much as possible.

FIRM No. **692.** Manufacturers of Steel Underframes and Bogies, &c.

The fact that much lower rates of wages and longer hours of labour obtain in the competing trades in Germany and Belgium naturally gives a distinct advantage to our competitors, the wages paid in the industries with which we are connected being little more than half what we ourselves are paying to our own workmen ; and in addition the foreign manufacturers have the assistance of the bounty which is paid on manufactured articles exported.

Tubes, &c.

CHISHOLMS & HENDRY BROS., LTD., 28-34, ROBERTSON STREET, GLASGOW ; Manufacturers of Wrought Iron Tubes and Fittings.

In the United States the pay of the workmen is higher than the pay here, but they work longer hours, and have to work harder. In Germany they work longer hours for considerably less pay, and in neither country are there labour combinations of the same kind as there are here, which restrict a man's output and put all workmen on the same level. In the United States a good man is allowed to earn a good pay, and there is nothing to bind the firm to pay an indifferent man the same rate as a good man.

1032

FIRM No. **603.** Manufacturers of Tubes, &c.

The principal reason for foreign prices being so much below those ruling in this country is mainly due to the rates of wages and hours of labour being so much more favourable to the manufacturer, and to the output per man per year being much more considerable than the output of a British workman. In some cases we have ascertained that continental workmen produce three times that of their British confreres. That is of course due principally to the foreign workman allowing machinery and tools to work to their utmost capacity.

Motors and Cycles

THE EAGLE ENGINEERING AND MOTOR COMPANY, LTD., OAKFIELD ROAD, ALTRINCHAM, CHESHIRE.

Undoubtedly the French and German motor car mechanics are paid at a lower rate of wages than the English mechanics. The mechanics who in an English motor car workshop receive 38s. per week, would receive not more than 32s., or more probably 30s. in Germany. The same remark applies to France. For this reason many of them in an effort to improve themselves come to England where they can command even more money than the English motor car fitter or repairer. Possibly the fact that they are foreigners and unable to speak the language of the country gives them an enhanced value in the eyes of their employers, " They must know more because they are foreigners," seems to be the opinion. A French motor car driver can command a higher salary than an English driver.

1033

JOHN MARSTON LTD., PAUL STREET, WOLVERHAMPTON ; Cycle Manufacturers.

The quantity of bicycles that a firm can produce and sell is of more importance than wages or hours of labour. At present the sale of English made bicycles is restricted by foreign competition in Colonial markets.

" RELYANTE " MOTOR WORKS LTD., BLACKHORSE LANE, WALTHAMSTOW, LONDON, E. ; Motor Vehicle Manufacturers, &c.

The workmen in competing countries work longer hours and at lower rates than ours and the average foreigner takes infinitely more care and pride than the average English workman in the details and the general finish of his work.

THE ROOTS OIL MOTOR AND MOTOR CAR LTD., CHICHELEY STREET, YORK ROAD, LONDON, S.E. ; Motor Car Makers.

The rates of wages are lower generally in Belgium, Germany and France with the exception perhaps of a few large firms in Paris such as Mors and Panhard-Levassor. Our information is that the rate paid by the large firms in Paris, in particular the first mentioned, is practically the London rate.

D. F. Tayler & Co., Ltd., New Hall Works, Birmingham; Manufacturers of Steel and Iron Wire, Spokes for Cycle and Motor Car Wheels. 1034

Owing to the hours of labour being 20 per cent. more than in England these foreign countries are enabled to dump their surplus output in Great Britain and her Colonies.

F. Windham, M.I.C.E., 51a, Clarence Road, Hackney, London, N.E.; Maker of Motor Cars, &c.

The rates of wages no doubt are lower on the Continent in our class of manufacture but they are somewhat higher in the United States though probably in the latter country the extra cost is met by employing fewer workmen, unfettered by trades unions, and employing labour-saving machinery. On the Continent the governments give extra facilities for transport of materials by rail and by canals, especially in France, and for goods going to us and our Colonies, for instance an exceptionally cheap rate to the shipping ports.

Firm No. **1,487.** Manufacturers of Motor Cars and Delivery Vans.

Our trade is not subject to adverse competition owing to any difference in the rate of wages or hours of labour. Foreign competitors gained a long lead owing to former restrictions against the running of self-propelled vehicles in Great Britain.

Firm No. **6,661.** Ironfounders.

1035 Foreign competition in motors and steam valves has caused a decrease of at least 15 per cent. in the amount of our employment.

Hydraulic Engineering

Beck & Co., Ltd., 130, Great Suffolk Street, London, S.E.; Hydraulic Engineers.

No doubt Germany gains an advantage over us in cheaper rates of wages and longer hours, the advantage in longer hours being mainly that machines give a larger output and so reduce dead weight charges. Working hours in America are longer but wages higher; this however is more than made up by the strenuous efforts demanded of American machine hands.

Summers & Scott, Ltd., Gloucester; General Engineers.

The competition we have suffered from most in this respect has been that of Germany, and it has been principally in respect of work where there is a large quantity of machine work. The longer hours they run and the lower wages they pay make competition with them in our Colonies more and more difficult.

Glenfield & Kennedy, Ltd., Kilmarnock; Hydraulic and Sanitary Engineers.

In Belgium though tariffs are very moderate sluice valves at one time, say 20 years or so ago, were nearly
all supplied from this country but since that time they have been nearly all made locally or in Germany,
due we believe to lower wages and longer hours of labour. Till this year we supplied most of the water meters
used in Brussels and in Belgium but now we are undersold by local firms for similar make of meters due also 1036
we should say to lower wages and longer hours and to the saving of freight and tariffs. In Belgium, Holland,
Denmark and Sweden, the Belgians and Germans are selling a lot of valves, cutting us out in some cases,
and in others reducing prices to such a low figure that in many cases business is hardly possible.

Heating and Ventilating

Newcastle-on-Tyne and District Operative Whitesmiths and Heating Engineers, 12, Richmond Street, Gateshead.

The importation of American radiators has done our trade a lot of good, as buyers recognise that they are equally as good in heating qualities, much better-looking and much cheaper than English makes. In our trade we consider that the American radiators have caused more people to have their buildings, &c., heated therefore employing more men.

Miscellaneous

J. and H. McLaren, Leeds; Engineers.

We have lost a good deal of our Continental trade, notably in Germany, in consequence of our being unable to reduce our prices so as to compete with the home-manufactured article. We are told they are able to manufacture cheaper and we understand the lower rates of wages and longer hours of labour as well as very cheap raw material enable them to do so.

1037 Firm No. **884.** Engineers.

In the home market we have not seriously felt foreign competition in our specialities. The hours worked in Germany in our particular trades are 9½ as against 9 per day in this country and in Austria-Hungary 10 hours per day. It is difficult to give exact information respecting wages but from inquiries made by our Continental agents and published German statements and statistics we should say the German wages in our class of trade is from 5 per cent. to 10 per cent. lower than our own and in Austria-Hungary 15 per cent. less than our own.

Firm No. **483.** Manufacturers of Steel Casks, Tubs, and Drums.

The wages paid for making our goods on the Continent are less than we pay here and we have seriously contemplated manufacturing in Belgium.

Accessories

A. Haacke & Co., Kieselguhr Wharf, Homerton, London, N.E.; Manufacturers of Boiler and Steam Pipe Coverings.

As far as we know in this particular trade the foreign houses work from 6 a.m. to 7 p.m., allowing half hour for breakfast, one hour for dinner, and a half hour for tea. This also applies to Saturday. Against this the English works start at 6.30 a.m. and work to 5.30 p.m. and on Saturday finish at 1 o'clock,

1038 **Employment**

Mechanical Engineering. *Accessories —continued.*

allowing half hour for breakfast and one hour for dinner (except Saturday). Thus the foreign houses work 68 hours against the English 54 hours per week. The wages are from 1s. to 1s. 6d. per day, per man, cheaper than our labour here.

LLEWELLINS AND JAMES, LTD., CASTLE GREEN ENGINEERING WORKS, BRISTOL; Engineers, Brass and Bell Founders, &c.

We pay much higher wages than continental makers, and our men work at the outside 54 hours per week, whereas on the Continent wages are much lower and the hours of working range from 64 to 80 hours per week. In the United States wages are higher and the men work 60 hours per week, but thanks to the fiscal system in the United States, which assures them of their home market, the manufacturers are enabled and encouraged to produce on a scale that it would be sheer lunacy on the part of any English manufacturer to attempt. They are thus able to standardise, specialise and organise production in such a manner as to reduce costs in spite of higher wages, far below anything we in England can hope for; and should they produce in excess of their home requirements they can, and do "dump" their surplus in Great Britain at any price obtainable, their profit having been assured by their home demand, not necessarily at extravagant prices but at fair rates of remuneration. If the position were reversed we in England could do with impunity what the United States makers have been doing, and as effectively.

1039 C. M. POWELL, 37, ASTON ROAD, BIRMINGHAM; Brass and Copper Tube Manufacturer.

I do not think we have adverse competition in consequence of the rate of wages or the hours of labour, but from over-production which the foreigners send here. Some of the manufacturers in my trade would undersell them in their own country if it was not for the high tariff placed against our goods.

SYDNEY SMITH AND SONS, BASFORD, NOTTINGHAM; Brass Founders, Steam Gauge Manufacturers, &c.

Had not foreign-made goods been imported into this country which we ourselves could have made, we would have found employment for 20 per cent. more hands.

FIRM NO. **500.** Brass Founders, Finishers, &c.

Continental workmen generally have much longer hours than workmen have here, and lower wages for this longer period than are paid here for our shorter period. In some instances also we understand that prison-made goods are put on the market in competition with our home articles.

FIRM NO. **892.** Engineers.

Trade Union restrictions on the output of the men have interfered with our getting the maximum production from our employees notwithstanding that we are prepared to pay for such additional output. The men themselves would be perfectly prepared to increase their output and so earn more money but they
1040 are not allowed by their union. This applies chiefly to our foundries.

FIRM NO. **904.** Brass and Copper Tube Makers, &c.

We do not think that the lower rates of wages paid in the competing countries affect us largely, owing to the fact that the higher prices we pay are met by the larger output of the individual man. In some cases we find foreigners have an advantage owing to lower freights and less railway charges.

Packings, &c.

THE UNITED ASBESTOS CO., LTD., DOCK HOUSE, BILLITER STREET, LONDON, E.C.; Manufacturers of Asbestos Goods.

The wages paid by manufacturers in Italy amount to little more than one-third the amount paid in England, and the number of hours worked per day are regulated by nothing but the individual opinion of the manufacturer. The rail and oversea freights from continental ports to England and to British Colonies are far less than the cost of transport incurred by English manufacturers.

FIRM NO. **3,094.** Asbestos Goods Makers, &c.

Foreign manufacturers have every advantage. They pay considerably lower wages. Hours of labour are longer and when busy they run their factories continuously day and night, working two shifts. They are not hampered by the same factory restrictions as prevail here and in Italy at least they
1041 run their mills by water power. To these advantages is due the fact that as regards articles of what I term primary manufacture they are far ahead of British production.

Industrial Engineering. *Machine Tools*

J. ARCHDALE & CO., LTD., LEDSHAM STREET, BIRMINGHAM; Machine Tool Manufacturers.

We experience adverse competition particularly from Germany and America. In the case of the German competition the wages paid are lower while the hours of labour are longer and the fact that the workmen are not hampered by the Trades Union officials enables the manufacturer to insist upon one man working a number of machines. The adverse competition as applied to America is chiefly due to the two latter causes, *i.e.*, longer hours and workmen not being hampered by Trades Union officials.

THE BOLTON GENERAL ENGINEERING CO., LITTLE HULTON, BOLTON.

We think the more intelligent workmen in the Eastern States produce more per man per £1 spent. The wages there are 50s. against our 35s., still they pay freight and sell cheaper. If our workmen gave their best efforts instead of restricting output we could beat them.

J. BUTLER & CO., VICTORIA IRON WORKS, HALIFAX; Engineers and Manufacturers of Machine Tools.

The rates of wages in Germany are at least 40 per cent. lower than in this country in our branch of trade. In America we believe that they are about the same. The great advantage which American and

German makers have over us lies in the fact that they are able to standardise, that is to devote their whole 1042
time, attention and capital to the production of one type of machine and consequently effect an enormous saving in the manufacture by producing parts in quantities, by economy in shop management, &c. We cannot do this because providing we do not find ready sales for stock in this country we have no other free market in which we could dispose of such stock at a price which would be as high as possible above cost.

THE J. C. NICHOLSON TOOL CO., CITY ROAD TOOL WORKS, NEWCASTLE-ON-TYNE ; Manufacturers of Machine Tools.

We think the competition from European countries is largely owing to their paying lower wages, but both in these countries and the United States of America manufacturers are able to compete with us owing to their protective tariffs enabling them to produce cheaper than either they or we can do under a system of free imports. Having the control of their home markets our foreign competitors can command more capital, introduce more labour-saving machinery, systematise in their works which are kept fully employed and can thus produce cheaper than we can do.

J. PARKINSON AND SON, SHIPLEY, YORKS ; Iron Founders, &c.

In France wages are much lower and hours worked longer than in England ; hence their cost of pro-
ducing repetition articles where automatic machinery is pressed into the service is much less than ours. Our
export trade has not declined in recent years except in two or three branches where our foreign customers
have commenced to make for themselves what they formerly bought from us. This has nothing whatever 1043
to do with tariffs. Cheap labour and long hours in cases where the principal item was labour, together with
the saving in carriage have closed our market in these instances.

J. TANGYE, PARK LANE EAST, TIPTON ; Manufacturer of Machine Tools.

Wages in Germany for men doing a large amount of hard work in machine tools are only 26s. per week against our 36s. to 38s. This work consists of "scraping" planed surfaces, the rougher part of which is done at Loewe's, Berlin, by a special class of unskilled men, the finishing being done by men at 32s. to 34s. and occupying little time. Hours are longer in Germany, and in America the 10-hours day is universal. For the German unskilled labour mentioned above the rate of 26s. is high, but may be explained by the necessity for good feeding, rough "scraping" being very laborious.

WEBSTER AND BENNETT, ATLAS WORKS, COVENTRY ; Engineers and Machine Tool Makers.

In Germany they work 60 hours and in some parts of the Continent 64 hours per week to our 54.
The wages in Germany for mechanics the same as we employ is 25s. per week on day work, to our 36s. ; 30s.
to 35s. piecework to our 45s. to 50s. With regard to America we believe wages are quite as high as here
but a large home market and the opportunity of dumping here enables them to put through their works
machines in larger quantities, thus materially reducing the prime or first cost. Where possible they try to 1044
undercut us in price.

E. B. GRANDAGE, LONGSIDE LANE TOOL WORKS, BRADFORD ; Gas and Steam Fitters' Tool Maker.

There has been a steady decline in orders and work done although I pay more and more for travellers' wages and expenses to try and keep up the sales. In Germany hours are from 10 to 12 per week more than here and the wages of the men are at least 10s. less per week. Their apprentice boys work for one year or more for nothing (our apprentice boys' wages begin at 5s. per week and rise to 16s. and over).

JOHN BAKER, FALCON WORKS, WISBECH, CAMBRIDGESHIRE ; Manufacturer of Corn and Seed Separating Machines.

Agricultural Implements

I have no doubt that the rate of wages and hours of labour in Germany, Russia, Holland and other countries have made competition very keen indeed with us. We must have our plant up to date to compete with America.

J. COOKE AND SONS, LINDUM PLOUGH WORKS, 53, MONKS ROAD, LINCOLN ; Agricultural Implement Makers.

The workmen in the United States receive higher wages than the English workmen, and both employer
and employed in America and Germany seem animated with the same spirit to turn out all the work they
possibly can, whereas our workmen will not do more than they can possibly help. The principles of our 1045
Trades Unions are opposed to increased production, and all our workmen, foremen included, seem to be imbued
with that spirit.

R. HUNT & CO., LTD., ATLAS WORKS, EARLS COLNE ; Agricultural and General Engineers.

We suffer from adverse foreign competition on account of low rates of wages on the Continent, particularly in Germany, and longer working hours, from hostile tariffs imposed against our manufactures, and particularly from the high freight rates charged by English rail and shipping companies.

W. PARK & CO., WIEND, WIGAN ; Spade and Shovel Manufacturers.

We are of opinion that the lower rates of wages paid in Germany and the longer hours worked there must assist competition with this country. These however would not account for anything like the difference in the prices at which German forgings are sold in England as compared with those of British manufacture.

A. POLLOCK, MAUCHLINE, AYRSHIRE ; Agricultural Machinery Maker.

I believe that labour is much cheaper and men work longer hours and much harder abroad than in this country. If there is no protection, our line of business will very soon be squeezed out of this country.

1046 **Employment**

Industrial Engineering
Agricultural Implements —continued

RANSOME AND MARSHALL, 67, TITHEBARN STREET, LIVERPOOL ; Engineers and Exporters.

The principal trouble is the strong protection of Trades Unions. These will not allow a man to do a fair day's work even for an excess in pay.

FIRM No. **505.** Mechanical Engineers.

The foreign firms with whom we compete in cream separators may employ a much lower paid class of worker and work longer hours than we are permitted to do by the Trades Unions. We do not attach so much importance to this as to the foreigners' advantage over us in having our free market for their surplus and their ability on that account to employ their manufacturing plant to better advantage. To be able to keep one's machinery fully and regularly employed is of more consequence to the employer than a small reduction in wages. Consequently if we can get trade enough to keep our works fully and regularly employed with the prospect of expansion we could afford to pay higher wages.

FIRM No. **546.** Engineers and Iron Founders.

So far as threshing machinery is concerned we have no adverse foreign competition, but the import of so many foreign agricultural implements, such as reapers, &c., prevents us from considering their manufacture for a moment.

1047 FIRM No. **845.** General and Agricultural Engineers.

Although wages are high, American competition is rendered possible by the advanced methods of manufacture owing to the absence of restrictions on output by Trades Unions. Lately competition has also sprung up from Germany in ploughs and corn drills the result of the absence of restrictions of output together with longer hours and lower wages.

FIRM No. **1,011.** Industrial and Agricultural Engineers, &c.

Wages on the Continent are from 10 per cent. to 15 per cent. lower and weekly hours of labour 10 per cent. more.

FIRM No. **1,503.** Manufacturers of Agricultural Implements, &c.

Our trade is subject to adverse foreign competition in consequence of difference in the rates of wages and hours of labour. The wages in Belgium and Germany, more especially with regard to any class of labour superior to unskilled, are very much less than in this country. In some cases we pay our men three or four times as much as they would get in Belgium and Germany and for shorter working hours.

The foreign workman has a distinct advantage over the British workman by reason of the more efficient technical education which has obtained on the Continent for a number of years. National industries are fostered by bounties and in some countries concessions are made on the Government railways in favour of
1048 native manufacturers.

FIRM No. **1,170.** Agricultural Implement Manufacturer.

My trade suffers from rate of wages in foreign countries being low and workmen working longer hours per day. I think the working man has ruined no end of trades in England and broken up many masters in consequence because we cannot charge sufficient for any profit for ourselves. Men must work longer hours or a reduction of wages must be made in competition with foreign labour. My opinion is as soon as foreign manufacture is stopped coming to England Trades Unions will begin to agitate for more wages and less work ; then things will be worse than now.

FIRM No. **1,303.** Agricultural Engineers.

Our trade on the Continent of Europe and in Germany has suffered very severely and at an increasing rate during the last four years from the operation of hostile tariffs. Our trade has also suffered considerably from the fact that lower rates of wages and longer hours of labour upon the Continent enable goods such as we manufacture to be produced at a lower prime cost.

FIRM No. **1,324.** Agricultural Implement Manufacturer and Agent.

We suffer from foreign competition owing to shorter hours and less work done here than on the Con-
1049 tinent and being restricted to one man on one machine or lathe. We purchased expensive automatic or
self-acting lathes purposely that a man could mind more than one yet the Unions will not allow them to do
so although the work is only " play " and could be done as easily and well by girls or boys as by highly paid
men. Being able to buy from abroad suits me better as I get a good profit and have less trouble and anxiety
than with British working men.

FIRM No. **438.** Agricultural Implement Manufacturers.

We are not aware that we have had any loss of employment due to the importation of goods we could have manufactured except a little perhaps by importation of ploughs.

Mining Machinery

C. E. HALL, 58, FOSTERS BUILDINGS, 22, HIGH STREET, SHEFFIELD ; Manufacturing Mining Engineers.

The difference in rate of wages and longer hours with no protective tariff on this side gives the foreigner a great advantage over us ; but a higher technical education amongst the heads of departments and foremen gives a greater advantage to the foreigner. The specialisation of work and a system of more perfect duplication of parts exercise a great influence over cost of production. Their business methods in selling are superior to ours—their adaptation to the requirements of each country or district. I think too they have better representation upon the ground they work and of a better type, and in their agreements for deferred payments and the terms of securing same, they are superior to us; in fact they can adapt themselves and their methods more to the ideals of their clients. **1050**

THE HARDY PATENT PICK CO., LTD., HEELEY, SHEFFIELD; Manufacturers of Mining Tools.

Our foreign and colonial trade is subject to adverse competition from Germany, we believe in consequence of lower wages and longer hours of labour prevailing there and our colonial trade is injured by American goods being placed upon these markets at considerably lower rates than those prevailing in America.

E. NEWELL & CO., LTD., MISTERTON, GAINSBOROUGH; Engineers, Millwrights and Ironfounders.

The difference in wages and labour allowing for men of equal skill is from 10 per cent. to 15 per cent. on the grinding machines we make in competition with Krupp. Carriage also affects us in competition. Schmidt can send a 20-ton machine from Copenhagen to London for less than I can send a similar machine from Gainsborough.

Textile Machinery

G. A. BINNS, ARCHER STREET, HALIFAX; Manufacturer of Machine Combs for the Textile Trade.

Abroad not only are the mill hours longer but the workmen take a bundle home for members of the family to do, which is brought back next day thus enabling the makers abroad to produce the comb at less cost than we can. I can only repeat what Messrs. X. said to me about an article we make for them: "Their best market had been spoilt by the cheaper importation." At one time (say three years back) I could have set my hands on this article a couple of weeks at a time knowing the goods would be wanted, but since then I can only work to order. It means a loss of six weeks' work in the year for say six of my hands. **1051**

FIRM NO. **150.** Knitting Machine Manufacturers.

The Germans and Americans are our chief competitors. Wages in Germany are lower and hours longer; their machines are cheaper but are inferior. Wages in America are higher than with us; they build good machines but ask prices which we are quite unable to compete with.

FIRM NO. **313.** Manufacturers of Weaving Machinery.

No doubt the wages in our trade are higher than those in foreign countries, excepting America, where they are higher than ours. The labouring hours are longer in all European countries and America and the reason of our higher wages in England is on account of the better organisation of wealthy Trade Unions.

FIRM NO. **747.** Hosiery Machine Builders.

Whereas formerly we sent thousands of pounds' worth of machinery to America, France, Germany, &c., at the present time we are absolutely shut out by excessive tariffs and also by difference in rates of wages, hours of labour, &c., especially as regards German competition. The practice has been for our machines to be copied abroad and made in their own countries, in France, Germany and America principally. **1052**

Printing and Paper Machinery

BERTRAM'S LTD., ST. KATHERINE'S-WORKS, SCIENNES, EDINBURGH; Makers of Paper Mill Machinery, Gearing and Steam Engines, &c.

We cannot give any definite information as to loss of employment due to the importation of goods we could have manufactured but would be inclined to judge it as about 15 per cent. to 20 per cent. at least in ours and kindred trades.

G. CHRISTIE, LTD., 197, BROOMLOAN ROAD, GOVAN, GLASGOW; Wire Drawers, &c., Manufacturers of Dynamo Brushes.

Competition from Germany, especially adversely, affects our trade because of the wages there being much lower than ours. This applies specially to our broad loom work (paper machine wire cloth weaving) where our weavers earn from 40s. to 50s. per week on an average. In Germany the wages in comparison are from 18s. to 25s. per week. In our factories the men work 54 hours per week. In Germany the working hours are much longer being at least 70 hours per week.

W. E. COOK, TURNAGAIN LANE, LONDON, E.C.; Printers' Furnisher. **1053**

In this trade we generally assume that the conditions governing labour in foreign countries alone make foreign competition possible in the home market. The quantity or number of machines put in hand at one time is an important factor in cost of manufacture and it follows that the greater the number the greater the economy and that America with its larger and educated population has a larger output than this country and can make at a cheaper rate. Its advantage with a growing population must yet be greater.

H. J. ROGERS, M.I.M.E., &C., THE WATFORD ENGINEERING WORKS, WATFORD; Engineer.

The rate of wages is much lower in German engineering shops and the hours of work longer. We could have employed 10 per cent. to 15 per cent. more hands had it not been for the importation of goods we could have manufactured.

Laundry Machinery

J. & A. MCFARLANE, LTD., SPRING BANK STREET, GLASGOW; Manufacturers of Laundry Machines, &c.

The long hours and low wages of the Continent place us in an unequal position to compete. We also suffer from the fact that our trade area is restricted by foreign tariffs while on the other hand our rivals in Germany and America have not only a free market in their own territories but in Great Britain besides.

1054 **Employment**

Industrial Engineering

They are therefore able to manufacture many lines on a much larger scale than we can attempt which tends to economy in cost of production. They have also some privileges in cost of transit not only in their own country but also in ours which enables them to land their goods in some of our large centres at a lower figure than we can.

Sewing Machines.

Bishop's Cluster Co., Ltd., 14, Golden Lane, London, E.C.; Manufacturers of Shuttles and Parts for Sewing Machines.

We pay higher wages and the hours are shorter than with our German competitors but as they pay more for tools, &c., through such goods being protected in their country, it brings the competition about equal.

Smith, North and Priestland, Ellis Street, Holloway Head, Birmingham; Sewing Machine Manufacturers.

We suffer from the fact that foreign workmen work more hours at less wages, also one workman will attend to several machines, especially automatic machines, whereas an English workman generally speaking will only attend to one machine because of the rules of the Society stating so.

Firm No. **2,171.** Fur Sewing Machine Manufacturers.

1055 We cannot get skilled labour. Most engineers or mechanics are not used to precise or accurate work but to heavy machinery.

Miscellaneous

J. M. Henderson & Co., King Street Engineering Works, Aberdeen; Engineers.

In Germany and Belgium wages are lower and hours of labour greater. In all other manufacturing countries labour is more pliable and trade unions are less difficult to deal with. Until the McKinley tariff became operative a large part of our business was with the United States in quarrying and granite-working machinery. We do not now send anything to the United States.

S. H. Johnson & Co., Ltd., Engineering Works, Stratford, London, E.; Mechanical Engineers.

Our trade is subject to adverse foreign competition in consequence of the lower rates of wages and the longer hours of labour worked in every European country. There are several other points where our trade is prejudicially affected by preferential advantages under which the foreign houses work. To mention one: In our business the foreigner opens an office in London, carries on business there with all the advantages of the home manufacturer for selling his goods and makes an income here for which he pays no income-tax. The agent alone pays income-tax on a very small part of the income, which if it were an English manufacturer's business would otherwise have to be paid. The foreign manufacturer pays nothing to English
1056 local rates on the profits he makes here.

G. Kent, 199 to 204a, High Holborn, W.C.; Manufacturer of Domestic Labour-Saving Machinery.

We have no specific information beyond the general knowledge that in Germany the rates of wages are less than in England and that the American workman is generally more strenuous than the English workman and that he is as a rule not content to do less than his best. That the English workman compares more unfavourably in this respect may be attributed partly to the action of trades unionism and partly to the expensive and inefficient patent laws which hold out much less inducement to the English workman to raise his status by inventing new methods of work than do the American and German patent laws.

James Oates, 33, Trinity Street, Huddersfield, Yorks; Manufacturer of Wallpaper Trimming Machines, &c.

It is difficult to ascertain exactly what our American rivals have sold in England but from actual information we have we should say about 30 per cent. of sales have been theirs which otherwise would have gone to English makers, thereby increasing employment in this article.

1057 W. R. Taylor, Medway Works, Rochester, Kent; Engineer, Ironfounder, and Boilermaker.

We suffer from the rate of wages and number of hours worked abroad and the absurd rules and regulations of some of the Trade Unions which impose conditions under which the men work and regulate the output, especially in the machinery shops, thereby greatly increasing the cost of production. The rules of Trade Unions should be re-arranged by legislation.

Firm No. **505.** Mechanical Engineers.

Since the date of the abolition of the Sugar Bounties our weekly average of men and boys has increased by about 50.

W. Johnson and Sons, Leeds, Ltd., Armley, Leeds; Engineers.

We consider that part of the reason of foreign competition is on account of the difference in wages and hours worked and the special regulations we have to face in England which have not to be faced in the foreign countries. This naturally favours the foreigner but we consider that in spite of these influences against us the superiority of our workmen would enable us to face this competition if we had the same market and were thus enabled to make the large number of machines referred to instead of a smaller number.

(G) DIFFERENTIAL RAILWAY AND SHIPPING RATES

Differential Railway and Shipping Rates 1058

QUESTION 10 (FORM VI.): *Please give any information you have showing the effect on your trade of the action of foreign countries in differentiating railway rates and shipping charges on goods exported to the United Kingdom, or other countries.*

Besides the replies printed below many firms complain in general terms of differential rates; one firm however states that it has not been affected by differential railway rates and shipping freights.

J. MCMILLAN & CO., PORT DUNDAS, GLASGOW; Structural Engineers and General Ironworkers.

Railway and Shipping companies do all they can to encourage foreign competition. Iron and steel shipped from Antwerp for Glasgow, via Leith (rail from Leith) is carried through at 12s. 6d. per ton. By rail to Leith alone from Glasgow is 10s. 6d. per ton and from Leith to Antwerp alone 8s.

FIRM NO. **1,368.** Manufacturers of Electrical Apparatus.

Glass jars from Germany to New Zealand pay much lower rates from factory to destination than is possible with us.

JOHN KIRKALDY, LTD., 101, LEADENHALL STREET, LONDON, E.C.; Marine Engineers.

1059 Our greatest trouble is the through rates from foreign countries being nearly always less than those from centre to centre in this country. Uniform rates for native carriage plus extra for transit from abroad to seaboard of this country should be compulsory and would not only be equitable but beneficial to British trade.

ARTHUR BAGSHAW, J. BAGSHAW AND SONS, LTD., VICTORIA FOUNDRY, BATLEY, YORKS; Founders.

We suffer from railway freights especially in articles over 16 ft. in length which are charged as 2 tons irrespective of light weight.

W. R. TAYLOR, MEDWAY WORKS, ROCHESTER, KENT; Engineer, Ironfounder and Boilermaker.

We are at a great disadvantage through foreign countries having subsidised freight steamers and state-helped rail rates, &c.

EDWARD WHITE, WINDSOR WORKS, REDDITCH; Engineer and Ironfounder.

No doubt the Continental countries with State-owned railways get advantages in rates which we cannot expect under the present company-owned railway systems here.

FIRM NO. **884.** Engineers. 1060

The sale of our goods to say India, Australia and other of our Colonies is in our opinion seriously affected by the differentiating railway rates and shipping charges on goods exported there in competition with goods exported by British manufacturers from the United Kingdom. This remark also applies very strongly in our opinion in regard to railway rates and shipping of goods for our Colonies and foreign markets by foreign shipping lines.

FIRM NO. **1,128.** Manufacturers of Rolling Mills and Engines, Forging Presses, &c.

Lately in quoting for a very large piece of machinery we had to contend with the competition of German engineers who, aided by their preferential railway rates on export articles, offered to supply the plant at 5 per cent. below the tender of any English manufacturer. We obtained the order, however, as British workmanship and material were preferred.

FIRM NO. **C 1,718.** Manufacturers of Economisers.

The conference rates to South Africa are doing us much harm as they give our United States competitors a great advantage. We can actually ship via New York at 18s. 9d. per ton cheaper than direct from Southampton or London to East London but in most cases we have not sufficient time given us for delivery to take advantage of this reduction as it takes some six weeks longer to ship via New York. As our apparatus is a heavy one the difference in freight amounts to 12½ per cent. on the cost of our goods. 1061

THE VULCAN FOUNDRY LTD., LOCOMOTIVE WORKS, NEWTON-LE-WILLOWS, LANCS.; Engineers.

The low railway rates and shipping charges obtaining in the case of our foreign competitors enable them to deliver their goods in some cases at destination at practically the same cost as we pay for delivering f.o.b. British ports.

THE RALEIGH CYCLE CO., LTD., NOTTINGHAM.

Cycles can be and have been shipped from Chicago to Glasgow at about the same cost as the carriage from Nottingham.

F. WINDHAM, M.I.C.E., 51A, CLARENCE ROAD, HACKNEY, LONDON, N.E.; Maker of Motor Cars.

In many cases foreign Governments subsidise the steamship lines carrying the goods and thus enable the foreign goods to get the benefit of lower freight. Germany gives special facilities by the railway and extensive dock and loading facilities (in Hamburg especially) for goods coming from the interior destined for shipment to us or our Colonies.

Differential Railway and Shipping Rates

1062 FIRM No. **442.** Ironfounders and Machinists.

Railway rates paralyse business. We buy pig iron in Yorkshire and send our castings to London. Total cost of carriage, 34s. 6d. per ton. Continental ironfounders can buy the same iron and deliver to London at a far less carriage rate. Goods coming into Birmingham from the middle of Germany have a far less carriage rate than from Birmingham to Grimsby or Hull. We suffer considerably also owing to high dock dues and ocean freight.

H. J. COLES, LONDON CRANE WORKS, DERBY ; Crane Maker.

At present I think users will pay the British price for steam cranes if they want a good article. Electric cranes are largely made on the Continent and the cost of transport is against competition.

FIRM No. **1,562.** Ironfounders and Heating Engineers.

The freight from Chicago to London is not more than from York to London. The American therefore can dump radiators at prices we cannot touch.

ROYLES, LTD., IRLAM, NEAR MANCHESTER ; Engineers and Manufacturers of Radiators, &c.

We feel German and American competition, particularly in South Africa, also Canada and Australia,
1063 though what we feel most in South Africa is the iniquitous shipping ring which enables the foreigner to get in
with advantage.

TURNER, SCHON & CO., 101, LEADENHALL STREET, LONDON, E.C. ; Merchants of Machinery, Accessories, &c.

At present Americans appear to have a great advantage in freights from New York and San Francisco to Manila over those current from British ports. This we assume to be on account of Government freight contracts. When these cease (if they ever do) we should be on a more level footing.

FIRM No. **C 41.**

From Manchester to London goods pay 40s. per ton but the same goods from Manchester to London docks pay only 25s. This is done to prevent the goods going from Manchester to Thames by water.

FIRM No. **370.** Agricultural Implement and Machine Makers.

Railway charges keep our trade back and put a stop to extending trades in my manufactures. Carriage on goods is too high. I believe goods come from American ports to Cockermouth for less than from London.

1064 JOHN WALLIS TITT, WOODCOCK IRON WORKS, WARMINSTER, WILTS ; Engineer and Manufacturer of Agricultural Machinery.

The Americans beat me in colonial trade chiefly owing to the cheaper freight and transit charges on their lighter-made machines.

FIRM No. **764.** Engineers and Manufacturers of Agricultural Machines.

Freights at very low rates from the United States to South Africa and Australia have given important advantages to the United States shippers whilst British combine freights have handicapped British manufacturers. German manufacturers have also benefited by their low railway and sea freights.

BLACKSTONE & CO., LTD., RUTLAND ENGINE WORKS, STAMFORD ; Engine and Agricultural Implement Makers.

The Americans can deliver goods to this town which is fairly central, at 42s. per ton from New York. This figure is just about our average carriage for the United Kingdom. The Americans can therefore deliver their goods in this country for practically the same rate of carriage as ourselves. The rate from New York to Liverpool is about 12s. per ton, whilst if we wish to deliver in Liverpool we must pay 31s. 3d. per ton. These comparisons are made for the same class of machinery.

1065 FIRM No. **147.** Engineers.

We think that we can manufacture rock drills as cheaply as any one. The only disadvantage we labour under is the high freightage from England to say Port Elizabeth.

C. E. HALL, 58, FOSTERS BUILDINGS, SHEFFIELD ; Manufacturing Mining Engineer.

One important item in favour of our foreign competitors is the low freight they can secure for their goods to England on ships plying between ports. Take Hull, Grimsby or Goole. Coal and machinery go out at full rates. The vessels must return and to cover some cost a lower competitive rate is charged to the foreigner than that charged on this side for goods going out, but it saves the shippers from loss. There should be a compulsory fixed charge both ways of equal amount. Antwerp, Hull, Hamburg, London, Dover, Queenborough, Harwich, &c., will carry goods from the Continent for less than they will carry goods from here, because they have a regular service to and fro.

THE FINNIESTON ENGINEERING CO., 167, FINNIESTON STREET, GLASGOW ; General Engineers and Ship Repairers.

Our trade with South Africa has suffered badly owing to lower continental freights.

Firm No. 10,365. Brewers' and Bottlers' Machinery Makers. 1066

We pay less freight at times from inland towns on the Continent and in America to a port in the United Kingdom than we pay for freight from a port in England (for instance Liverpool) to London. The Great Eastern Railway to or from Harwich and Rotterdam is the only company which seems to do the business promptly and cheaply.

Firm No. C 913.

In Germany and Belgium freights are all regulated by State-owned railways, which consult the individual conditions of each works. They are not mileage rates in the sense that the works furthest from the seaboard pays a correspondingly higher freight than another works geographically more favourably situated.

American Wringer Co., Ltd., 56, Southwark Street, London, S.E.; Manufacturers of Domestic and Labour Saving Machinery.

The chief disadvantage we experience is that rates of ocean freight to the Colonies from American ports are much lower than from English ports.

G. Scott and Son, Ltd., 44, Christian Street, Commercial Road, London, E.; Engineering Manufacturers. 1067

Taking the average of all the countries who compete with us in our home market we do not think that we suffer in the matter of rate of wages or hours of labour but we think that we do in carriage as our particular machinery can be sent from the manufacturing districts in Germany to most of our ports for considerably less than we can send it in this country by sail or coasting steamers.

Davidson & Co., Ltd., Sirocco Engineering Works, Belfast; Makers of Machinery for the Manufacture of Tea Leaf, &c.

To our patented articles competition does not of course directly apply but in articles supplied along with our patented goods foreign competition is keen, especially in South Africa where our agents inform us that American firms get better terms on through rates with the shipping companies than are obtainable for direct shipment from Great Britain.

Wallis Brothers, Ltd., Ayres Quay Foundry, Sunderland; Manufacturers of Castings and Forgings for Marine Engineers and Shipbuilders.

Railways in this country should be compelled to give further facilities and not to give preferential rates and conditions to foreigners and foreign goods. We have lately missed several contracts for hundreds of pounds' worth of work owing to the extremely heavy charges for transport from here to London. The difference in railway charges here and on the Continent would have enabled us to secure most, if not all, of this work. 1068

Firm No. 917. Manufacturers of Weldless Steel Tubes.

The rate of carriage to some places from Sweden is materially lower than our railway rate, *e.g.*, Birmingham to Glasgow.

Firm No. 10,562. Manufacturers of Gasholders, Tubes, &c.

Competition is assisted by the fact that shipping freights from American ports to South Africa are very much less than conference rates from British ports.

Firm No. 10,095. Dealers in Building Material.

We have suffered a great deal through the formation of shipping rings. These combinations hold out a bonus of 10 per cent. if one confines shipments to their lines. For over two years we suffered severe competition through an outside line from Antwerp to Vera Cruz. We know of heavy hardware being carried at 8s. per ton against our lowest English rate of 17s. 6d. plus 10 per cent. This enabled Germany to sell in competition with us goods which are considered purely English, such as corrugated iron, &c. As all the German lines of the ring are at liberty to fight these outsiders, whilst the English companies refuse to support the trade by accepting Continental freight rates, we consider it a gross injustice to the export trade of this country. 1069

Firm No. 10,066. Machine Tool, Railway Wheel and Axle, &c., Merchants.

British steamers owned by British capital and largely manned by British sailors have for many years given preferential rates to Hamburg and Antwerp shippers, openly and under the rose. The great Belgian low-grade iron trade with India, China, and the East has been built up by this advantage in freight never less than 2s. 6d. and often 7s. 6d. per ton. The same thing now prevails between New York and South Africa The British lines give preferential freight rates to American shippers which just about balance the difference in the duties. As we are heavily taxed for the protection our flag affords these vessels, this procedure is little less than a crime.

1070 (H) INDUSTRIAL COMBINATIONS

QUESTION 9 (FORM VI.): *To what extent do you think that the recent developments of combinations in foreign countries give them an advantage in economising in the production of the class of goods produced by you and in the expansion of their export trades? Please give such particulars as you can.*

Besides the firms whose replies are printed below 6 others complain of the effect of foreign combinations and 10 firms state that they are not affected by them or that combinations do not exist.

J. McMILLAN & Co., PORT DUNDAS, GLASGOW ; Structural Engineers and General Ironworkers.

In the end such big combinations will be a failure, as in America. Moderate-sized combines will do when looked after by original principals.

FIRM No. **1,453** AND FIRM No. **1,317.** Engineers.

We do not think that the recent combinations in the United States tend to diminish the cost of
production but they assist pioneer work on a large scale. The increase of works or a combination of works
above a moderate size does not in my opinion lead to diminished cost of production except as tending to
secure a continuity of production, but in isolated cases it enables the central executive to take otherwise
unwarrantable risks, lay down pioneer or special plant or take other measures tending to diminish costs
1071 and improve the product. It also enables them to exploit and capture new markets and crush competitors,
measures which could only be taken by a very large company or a combination of companies. Combinations
on the other hand tend to stifle individual enterprise which up to the present time has been the chief means
of advance and progress.

CLARKE, CHAPMAN & Co., LTD., VICTORIA WORKS, GATESHEAD ; Engineers and Electricians.

This hardly applies to our industry. Combinations are formed (1) to control the market, (2) to maintain prices, (3) to reduce the number of heads of many works and centralise the management and thus cheapen establishment charges, (4) to buy up new companies as they are formed and thus hold a monopoly which is not always in the interest of trade.

FIRM No. **1,368.** Manufacturers of Electrical Apparatus.

The advantages of trusts arise through their closing small and inefficient works and working the large factories at highest efficiency and so decreasing establishment, labour and prime costs both as to raw material and finished goods.

FIRM No. **1,584.** Engineers and Founders.

1072 Lessening competition in their own country enables them to increase prices and wherever there is a surplus of their manufactures they can sell them at considerably under cost price in this country and still show a reasonable all-round profit on their sales. It undoubtedly pays them to do this with their surplus goods rather than spoil their own home market or work short time and so increase the cost in various ways.

JOHN KIRKALDY, LTD., 101, LEADENHALL STREET, LONDON, E.C. ; Marine Engineer.

All evidence is in the direction of combinations reducing establishment charges in every trade.

FIRM No. **892.** Marine Engineers.

There is only one combination in our line and it is an American one. We understand the combination has not resulted successfully and no increased economies have been effected in the production of the goods. From conversation with officials of this combination we understand that personal feeling plays a considerable part in retarding the adoption of uniform methods. The manager of one works is averse to adopting a method which has been found successful elsewhere because it emanates from some other superintendent for whom he has no regard. This explanation may seem somewhat petty but it indicates one of the difficulties in the management of such combinations.

FIRM No. **884.** Engineers.

The Americans and Germans are making strenuous efforts to capture the trade in our Colonies and
1073 in heavy machinery it is becoming increasingly difficult to meet their competition. Their powers of
production are much in excess of their own requirements. The recent development of combinations gives
them an advantage in economising production by manufacturing in very large quantities, and with the
advantage of their extremely high tariff, which prevents competition in their own country, they are enabled
to supply markets all over the world at prices at which they would be unable to manufacture except by
means of the combinations and the large quantities produced and sold at high profits in their own country.

THE VULCAN FOUNDRY LTD., LOCOMOTIVE WORKS, NEWTON-LE-WILLOWS, LANCASHIRE ; Engineers.

Combinations in foreign countries being able to rely on a regular home trade can launch out into improvements on a much larger scale and by specialising can produce more cheaply and thus dump their surplus upon our home and colonial markets at prices we are quite unable to compete with.

FIRM No. **1,576.** Engineers.

In direct acting pumps the Americans have formed large combinations which have been able to make enormous numbers of one size at a time. We are given to understand by friends in the United States that these trusts very seldom pay their shareholders any dividends but they are reconstructed from time to time and so are able to exist. They compete very actively indeed with British manufacturers in Great

Britain and the Colonies. They appear to be more reckless than a British manufacturer would be in "consigning" goods to the British Colonies. 1074

FIRM No. **C 1,561.** Pump Manufacturers.

I might point out that the very large firms of American pump makers have recently amalgamated and have also purchased the controlling interests in a large London firm. This amalgamation secures contracts for pumping and condensing plant ostensibly to be made in this country but wherever possible the larger part is made in America and put together in England, thus avoiding practically all local taxes. We append a table of local rates on our works:—

Year.	Percentage.	Year.	Percentage.
1899–1900	·48	1901–1902	1·22
1900–1901	1·04	1902–1903	1·44

C. TAYLOR, BARTHOLOMEW STREET, BIRMINGHAM; Engineers and Lathe and Machine-Tool Makers.

Combinations have enabled American makers of machine tools to sell here at lower rates.

FIRM No. **554.** Machine Tool Makers.

1075 Probably the administration expenses of these large trusts and combinations more than equal the economies in production. The power of a large trust to regulate home prices secures better profits which allow them to sell surplus at very low prices for export.

FIRM No. **1,128.** Manufacturers of Rolling Mills and Engines, Forging Presses, &c.

We consider all such combines bad. Whatever economies, if any, are effected by organised efforts amongst a number of concerns at one time separate and distinct we think experience amply proves that the combines tend to overlay individuality upon which in the last resort success of every business enterprise rests. A policy which tends to atrophy of the impelling and controlling force in commerce cannot give any really lasting advantages, and whatever superficial and passing success they may show we think there is nothing of permanent value in these combines excepting perhaps a negative example.

HARRISON, McGREGOR & CO., LTD., LEIGH, LANCASHIRE; Engineers, Ironfounders.

The only combination that has been arranged in the harvesting machinery industry was in 1902 when 5 firms were joined into one combination. Their head office is in Chicago and their capital is about £24,000,000. Very severe competition existed in America between two of these companies and the undoubted intention of the amalgamation was economy of production and of administration.

1076 FIRM No. **764.** Agricultural Engineers.

The combinations of which we have heard have not been sufficiently long in existence to enable us to judge the results, but if the prices at which the United States' representatives were offering harvesting machines at Boston Fair are an indication of the effect of the combine, the United Kingdom trade will be badly cut up.

JAMES GREAVES & CO., 13, RIDGEFIELD, MANCHESTER; Textile Engineers.

It has not affected the growth of our business but it has diverted many of the orders—which we used to place with British manufacturers—to Germany, France, Belgium and America.

J. APPLEYARD, HARRIS STREET, BRADFORD; Laundry Engineer.

The advantages of foreign trusts may be instanced in laundry machinery. They can send machines here without any duty being imposed but in their own country the Americans can demand a much higher price for the machine because they know their customers will not buy from this country and pay a 45 per cent. duty. Therefore with the over-profit they get in their own country they can afford to let machines come into this country cheaper than we can sell at. If this 45 per cent. were imposed upon them they could not do this and I think it would improve trade at home. 1077 I could do an enormous amount of trade with my wire sewing machine in the United States but they all tell one tale that they cannot afford to pay the duty.

FIRM No. **533.** Engineers, &c.

A combination in a trade, judiciously administered, is the best means of protecting and developing that trade.

FIRM No. **1,536.** Manufacturers of Castings and Forgings for Marine Engineers and Shipbuilders.

We have not dared to take up several lines we have contemplated owing to the knowledge that foreign combinations and the dumping system are effectual preventives against competition, without a very large capital to push with at first. The only advantage gained by combinations lies in their being in a position to purchase their needs in larger quantities and therefore at some gain in price.

FIRM No. **1,023.** Manufacturers of Ordnance and Marine Forgings, &c.

The formation of combinations in foreign countries has to some extent been an assistance in economising in the production of our class of goods. We contend every country is fairly entitled to the advantages in internal economy it introduces. We are not alarmed at anything but "unfair" trading.

1078 **Trusts and Industrial Combinations**

John Rogerson & Co., Ltd., Wolsingham, R.S.O., Co. Durham; Manufacturers of Castings and Forgings for Ships and Electric Dynamos.

Combinations can weather bad times by pool arrangements and prevent what is in some cases unnecessary competition owing to their knowledge being obtained through the heads of the various firms meeting together from time to time and where necessary agreeing to take united action either in furtherance of the protection of their home trade or in an endeavour to expand their export trade.

Remedial Measures Required and Their Effects

(I) Remedial Measures Required and their Effects

Question 11 (Form VIII.): *Do you think that, in the interests of your trade, special measures are required to prevent the importation of foreign manufactures below cost price in the country of origin; and, if so, of what character should such measures be?*

Question 8 (Form VIII.): *What minimum duties, if any, on the articles imported, similar to those*
1079 *you manufacture, do you suggest as sufficient to safeguard the interests of your trade?*

Question 8 (Form VI.) and Question 9 (Form VIII.): *If such duties were imposed, what, in your opinion, would be the effect* (a) *upon prices in the home markets,* (b) *in securing greater continuity and security in the home trade,* (c) *in promoting economies of production,* (d) *in increasing employment, and* (e) *in increasing wages?*

Besides the replies printed below, 5 firms do not suggest any duty, 2 firms state that the imposition of a duty would be detrimental to them in every way, 8 firms state that no special measures are required to prevent dumping.

Other replies not given below suggesting the imposition of duties may be summarised as follows:—

20 per cent. on bridge and girder work, roofwork, steel and iron framed buildings covered with
galvanised or painted corrugated iron and steel sheets; 5 to 20 per cent. on electric machinery, pumps
and ships' deck machinery; 15 per cent. on cable and flexible cords; 10 per cent. on porcelain goods
(such as ceiling roses, cut-outs, fuseboards), counterweight fittings and woodblocks; 10 to 20 per cent. on
electric fittings, plumbers' brass work and steam brass work; 33 per cent. on American lifts; 15 per
cent. on dynamos and motors; 10 per cent. on steam engines; 5 per cent. to 15 per cent. on steel ingots,
forgings and castings; 10 per cent. on cast-iron pipes; 25 per cent. on motor cars and parts; 10 per cent. on
filter presses, air compressors and steam pumps; 10 to 20 per cent. on all machine tools; 15 per cent.
1080 on threshing machinery; £1 per machine on mowing machines; 10 per cent. on reaping attachments
for same; 30 per cent. on self-rake reapers and 40s. each on self-binders; 15 to 20 per cent. on repair
parts for above machines; 15 per cent. on general agricultural implements and machinery; 20 per cent.
on manufactured goods; 25 per cent. on wire cloths for paper-making machines; 10 per cent. on pulp
strainers; 10 per cent. on laundry machinery; 20 per cent. on refrigerators, iron safes and water meters;
10 per cent. on copying presses; 10 per cent. on ball and tube mills; 25 per cent. on iron casks;
20 per cent. on steel covered with metallic coating or galvanised; 15 per cent. on black or painted steel.

Structural Engineering

J. McMillan & Co., Port Dundas, Glasgow; Structural Engineers and General Ironworkers.

It has been very plain to us for many years that our trade here has simply been trifled with through the stupidity of free trade. Mr. Chamberlain's opinions ought to have been carried out a dozen years ago. We consider it the first duty of our legislation to encourage the trade of the country by all means. Give us plenty of trade and the dear loaf craze will vanish. To safeguard the interests of our trade there should be a duty of 10 per cent. on beams, girders and structural work. The effect of such a duty would be to improve trade generally, secure greater continuity and security, promote economy and increase employment and wages.

1081 Firm No. **C 4,670.** Consulting Engineer.

We have never been more busily employed or made larger profits or had more foreign orders than to-day and our home trade also is good and improving. I attribute this prosperity:—(1) To our present system of free trade. If all countries would adopt free trade it would be better, but we cannot expect this and any form of retaliation would be worse for ourselves as we always get the most favoured nations' terms, and our hands which number many thousands are on the average better employed than similar works in the most highly protected countries. We usually work night and day and have done very little short time for many years. (2) To the fact that the most up-to-date scientific processes of manufacture are employed, the highest efficiency obtained, and the best materials used. (3) By the free import of steel, sheet iron, wire, girders and bars, chemical apparatus, pure chemicals, leather, &c., we can buy in the cheapest market. I think that the further development and prosperity of our business might be assisted by: (1) Reform in our patent laws. (2) Alteration in our land laws and a more equitable system of taxation based on such reform. (3) Extension of our inland water ways and removal of preferential railway and shipping rates in favour of foreigners. (4) Appointment of a Minister of Commerce and a Department specially to attend to commercial matters and push and protect trade interests. (5) Preferential rates with our Colonies are desirable and free trade with them would be best of all, but if to attain this it will necessitate any duty on food or raw material it will be an unmitigated evil and very detrimental to the businesses I am associated with.

G. CHRISTIE, LTD., 197, BROOMLOAN ROAD, GOVAN, GLASGOW; Manufacturers of Dynamo Brushes, &c. **Electrical Engineering** 1082

An import duty would not affect prices, but greater security would be assured, and increased employment would be given to home workers to the extent of about 10 per cent. Wages would not be affected unless there were a general advance in other trades.

An import duty on manufactured articles, *i.e.*, finished goods, would enable us to quote prices that would leave a margin of profit. On raw materials and rough goods such as steel forgings, &c., it would enable us to secure the order and prevent dumping. The manufacturers of this country would obtain more continuous work, the only fluctuation would be the natural ebb and flow of trade. If prices leave a reasonable margin of profit the manufacturer would be able to largely increase the output and thus reduce cost of production. If the trade of the country can be primarily kept for the home manufacturers as other countries are aiming at doing, notably Germany, then existing industries will be more fully employed and others will spring up according to the need, both of which will give increased employment. According to the demand wages increase and will continue to do so.

EAST ANGLIAN ENGINEERING CO., LTD., STOWMARKET, SUFFOLK; Electrical Engineers.

Without protection our labour union wage tariff must be broken down by a united manufacturers' union. The crux of the whole question, so far as our home market is concerned, is comparative wages and working hours. It is impossible in the long run to continue to pay high protective (labour union) wages and at the same time sell at open market prices. Cheap prices mean cheap wages or very large production. 1083

RHODES ELECTRICAL MANUFACTURING CO., LTD., 70/1, BISHOPSGATE STREET WITHIN, LONDON, E.C.; Manufacturers of Electric Machinery, &c.

Import duties would not alter prices but would stay the foreigners' hand to a great extent. They would not be able to make a sufficient profit to be worth their while to compete so keenly. The cost of production on account of larger turnover would be reduced. We estimate we can employ more hands if we secure our share of orders which now go abroad, and on account of increased turnover our hands (who all work at piece-work) would have every opportunity of earning more money. They would presumably not be turned off at short-work time. It would be fair and reasonable to tax imports 10 per cent. We fear a higher tax would only increase the home-trade to the unfair benefit of manufacturers and to the detriment of consumers and the trade generally.

FIRM No. **1,368.** Manufacturers of Electrical Apparatus.

Under import duties prices would remain stationary as there would not be the tendency to sell at a loss as at present. Continuity and security in the home trade would be much better; production would be more economical through greater quantities being made up; employment would be greatly increased, nearly 50 per cent. in fact, and wages would increase proportionately in amount. 25 per cent. duty on electrical accessories would safeguard the interests of our trade. 1084

FIRM No. **1,453.** Engineers.

The proposed duties would not in our opinion increase prices; on the other hand as there would be greater continuity and security in the home trade more capital would be invested and home works would be kept up in a higher state of efficiency, resulting in more economical production, increased employment and higher wages.

FIRM No. **1,584.** Electrical Engineers, &c.

Import duties would make little or no alteration on prices in the home market. The home competition is quite sufficient to keep prices at a reasonable level. This would be assisted by the continuity and security of trade due to the duties and to economies in production, as where manufacturers can see a steady and profitable trade they will naturally do all possible to lay down the best machinery and employ the highest skilled labour. Such steady and increased business must increase employment and wages would have a natural tendency to rise, but steady employment is what many skilled men are to-day actually requiring more than an increase per week in wages.

A. RUTHERFORD & CO., NEPTUNE WORKS, BRIDGE STREET, BIRKENHEAD; Shipbuilders, Engineers and Boiler Makers. **Marine Engineering** 1085

No one can prevent others from selling goods below cost price, but if they do so it will soon cure itself, except where there is a bounty paid to enable the manufacturer to sell under cost. Then a countervailing duty of equal amount ought to be levied on such goods as well as the percentage equal to the local and Government taxation and this would again bring us equal. This is the very least that should be done, but we would not only be justified in charging the rates and taxes but also a rental so to speak as well, because our goods had to pay rental during the process of manufacture. All manufactured goods imported into Great Britain should pay not less than the percentage paid by similar goods manufactured in Great Britain to local and Imperial taxation, cost of collecting, &c. This would amount to about 25 per cent. on the first cost of the goods according to the amount of wages paid on the manufacture of the several articles. This does not include rent which should also be taken into consideration. The import of all kinds of manufactured goods ought to be conducted on the same lines as a private firm or company who would certainly not permit a competitor to bring his goods into their warehouse and allow him to stand behind the counter and endeavour to take away their trade by underselling them owing to the fact that the competitor had no rent or taxes to pay which were very heavy on the firm themselves. We think the firm would quickly adjust matters by making such a charge as would not only pay the proportion of rent, &c., but also a trifle for allowing the goods to be brought for sale and so

1086 helping to keep the foreign shops open. If they had no outlet for their goods in this country many of them would have to close. Import duties would increase employment, empty our workhouses, and increase the prosperity of the working classes. Increased employment would increase the number paying taxes, and so eventually reduce the burden felt by all. We do not think a duty would materially increase the cost but if it did the increase would not be felt, as we maintain it is a very much greater hardship when you have no penny to buy a penny loaf than it is if you had to pay 2d. for the 1d. loaf, but have 4d. or 6d. in your pocket to pay it with, and the same holds good for all classes of manufactures. We believe it would also stop the decadence of many trades and revive some of those that are ruined by the free importation of all sorts of manufactured goods as at present.

Firm No. **690.** Steamship Builder.

On two occasions I have built a yacht and cargo steamer in Spain cheaper per ton for material than they could be built here. The only help for this country's shipbuilders is to establish model shipbuilding yards and to tax all German and Dutch built ships that come over to this country, say 25 per cent.

Firm No. **1,042.** Marine and General Engineers.

A duty on imported goods would give the manufacturers a margin of security by keeping the volume
1087 of trade, which means cheaper production, increased employment and steady wages.

It is to our interest to keep our neighbour manufacturers fully employed as we get work from them. The steel plate mills send us orders. If we were to get all our plates from abroad we should suffer to the extent that if the mills do not work they do not require repairs and renewals ; but so long as we are permitted to buy cheaper plates from abroad we are tempted to do the unfair thing and it is all the more unfair because we know the means employed in what is known as dumping or unfair competition.

Firm No. **4,098.** Boat Builder, &c.

To safeguard the interests of our trade we should require a duty of 33⅓ per cent. on boats for use on board yachts as dingeys, gigs &c., and 50 per cent. on boats either fitted or to be fitted with machinery for propulsion. These duties may seem high but it is to be borne in mind that the articles mentioned are purely luxuries and those who use them can well afford to pay for them. The effect of the importation of cheap, sometimes nasty, foreign goods is to reduce the quality of the home-made goods and is a fertile source of "faking." An import duty would raise prices appreciably and should the demand increase there would be greater continuity and security in the home trade. A duty is not likely to promote economy of production but, if anything, would have the opposite effect. Employment would be increased but it is questionable if wages would rise.

1088 John Kirkaldy, Ltd., 101, Leadenhall Street, London, E.C. ; Marine Engineers.

Prohibitive duties are required to ensure continuous employment of native labour and retention of cash for circulation in this country for the benefit of all concerned. Foreign firms merely have agencies here and do not, as far as our information goes, pay anything in the shape of Imperial taxes or local rates as they should to place natives on a fair competitive basis with them. If we had duties prices would remain moderate, home trade would be stable and free from sudden depressions, production economised by assured and increased output, and employment would be increased and more reliable. Wages would depend on demand and supply as at present but the tendency would be to improve the position of labour.

Firm No. **892.** Marine Engineers.

On the high-grade and important lines of our business no duty is necessary as we can compete in the best article with any nation and beat them. In the cheaper lines of gear a 10 to 15 per cent. duty would be advantageous, but so far as our business is concerned the advantage gained by a moderate duty on imported competing articles would be infinitesimal compared with the advantage we would reap by securing a corresponding reduction on the United States tariff to enable us to extend our market there. The duty therefore should be framed so as to either force or induce a reduction of the United States tariff to the same standard as would be ultimately applied here. The duty suggested would neither increase nor decrease prices in the home market. In the cheaper lines of goods prices have been brought to a point by competition that
1089 manufacturers have had to work down to by reducing quality. Any tendency to raise prices as the result of the imposition of a duty would be checked by internal competition and the continual quotation by customers of prices previously paid. It would certainly tend to secure more of the home trade for home makers. Many firms would be content to reap the increased trade and work away as before ; but the enterprising firms as their output increased would initiate better methods and introduce new machinery to cope with the progress of the business. We do not think it would have much effect on increasing employment or wages.

A. Schofield, Campbell Jetty Fishdocks, Grimsby ; Shipbuilder and Boiler Maker.

If those businesses affected by foreign tariffs could be placed on an equal footing with our own by a small import duty this should be done, even if the same includes foodstuff. My business is one of those not affected by foreign tariffs.

Firm No. **1,317.** Marine Engineers.

15 per cent. on dynamos and motors and 10 per cent. on steam engines would safeguard the interests of our trade. Prices would not be increased but greater continuity and security in the home trade would lead to more capital being put into it. British trade efficiency would be increased by the duties, resulting in economy in production and increased employment and wages.

Archd. McMillan and Son, Ltd., Dumbarton; Shipbuilders. 1090

Prices would probably rise at first but better this than that the foreign manufacturer should obtain a monopoly as he would probably do if the home manufacturer were ruined; prices however would remain at a more uniform level as goods would not be dumped at less than cost, thus squeezing down the home market. Works would be kept more steadily employed and rapidity of production would become a matter of greater importance. Economies naturally follow. Wages would naturally maintain a higher level if not subjected to reductions caused by slack trade.

Firm No. **1,564.** Marine Engineering.

There is so little shipbuilding or marine engineering work ordered abroad by British owners that any import duty would not affect the home industry.

Firm No. **3,879.** Ship and Yacht Builders.

Duties would have the effect of raising prices all round and might possibly limit output in everything but bare necessaries. The manufacturer would endeavour to keep his prices down and to increase his output; the trades union would then step in and increase his rate of wages and he would find himself where he started. Employment would probably be increased at first and wages would probably rise.

Firm Mo. **1,023.** Manufacturers of Ordnance and Marine Forgings, &c. 1091

There is no remedy but a substantial duty, otherwise some of the principal branches of the steel trade are certain to drift into the foreigners' hands. We estimate four years will see the last of the forging trade in this country.

Wallis Brothers, Ltd., Ayres Quay Foundry, Sunderland; Manufacturers of Castings and Forgings for Marine Engineers and Shipbuilders.

Importation of any manufactures below cost should not be allowed, and where suitable arrangements, counterbalancing such advantages to our competitors by some corresponding advantage given to us, cannot be arranged with the country concerned we should at least put on a duty equal to the difference in cost and price imported at.

Firm No. **549.** Manufacturers of Miners' Drills, Forgings for Shipbuilding, &c.

The importation of iron and steel manufactures below cost requires remedial measures by a heavy duty. A small duty would have no effect on "dumping" which cannot be called competition in the ordinary sense of the word. The duty should be regulated by the known percentage by which the foreigners are sending manufactured goods over here below our cost, for instance a duty of 40 per cent. would be necessary on German steel forgings to bring the cost up to English prices. 1092

Taylor Bros. & Co., Clarence Road, Hunslet, Leeds; Manufacturers of Iron Bars, Plates, Forgings, &c., for Gun Mountings, Battleships, Crank Shafts, &c.

To place the exporting and importing countries on their true merits the difference between the selling price in the exporting country for home consumers and the dumping price quoted in the importing country should be imposed. The power of bargaining in our opinion would certainly have a great and good effect and should be tried as a preliminary step.

Wallsend Slipway & Engineering Co., Ltd.; Marine Engineers.

The importation of foreign manufactures at a low price does not affect us directly to an injurious extent. It is the British forges that suffer owing to the supply of an excellent quality of steel shafting from Germany at lower prices than they can accept.

Mechanical Engineering.
Engines and Boilers

Joseph Richmond & Co., Ltd., Watermoor Foundry, Cirencester; Engineers.

The only way to prevent the import of foreign manufactures below cost price is to put a tariff
on them similar to what they impose on us. We are unable to put the same restrictions on foreign
manufactures as English firms are tied to, viz., hours of labour and rate of wages in tendering for any 1093
contract, therefore the only way to meet them is to put a duty on them. A large number of foreign castings
imported free of duty seriously affects our trade and we are unable to send castings abroad owing to the
heavy tariff against us.

Dewrance & Co., 165, Great Dover Street, London, S.E.; Engineers.

We consider a great reform in the incidence of taxation would be better than protection. According to the present unjust method of levying the taxes the user has to pay taxes if he buys British-made goods but not if he buys foreign-made goods. We estimate that, taking income-tax and local rates on our factory and residences of our employees and also indirect taxes on exciseable goods consumed and expenses in complying with the requirements of the various Factory Acts, our customers have to pay a taxation of 5 per cent. on all goods they buy of us quite apart from material, labour, general expenses and profit. If we were treated as the foreigners are we could sell at 5 per cent. less. In many cases this is enough to induce buyers to purchase from the foreigners. An import duty would reduce prices in the home markets by the amount of the taxes now unfairly levied on British goods that ought to be levied on foreign-made goods; it would check dumping in times of bad trade and so secure greater continuity of occupation; it would secure economy of production as nearly all economies mean capital

1094 outlay and people are not so inclined to invest in undertakings that are unremunerative. For the same reason it would lead to increased employment, and (as wages depend on the demand) to increased wages.

Firm No. **689.** Engineer.

The importation of foreign manufactured goods at prices proved to be below the cost of production should be absolutely prohibited. On heavy machinery we should charge the same duty that may be charged by the competing country.

P. Toward & Co., St. Laurence Iron Works, Burrell Road, Newcastle-on-Tyne; Engineers, Boiler and Tank Builders.

It would be much better for trade generally in this country if the importation of manufactures below cost price could be prevented but we are unable to make any suggestion as to what such measures should be. A duty of 15 per cent. to 20 per cent. on steel plates would cause British firms to buy at home. As the result of an import duty prices in the home market would be only slightly higher; the competition among home makers should be sufficient to ensure this. There would also be greater security and steadiness in the home trade and in employment, with steadier if not increased wages.

Hatley Engine Co., Fairweather Green, Bradford, Yorks; Engineers.

1095 There should be a duty of 10 per cent. on steam engine governors, steam engines, and mining pumps. We believe that if anything less than a 10 per cent. duty were imposed the American manufacturers would still be satisfied to export their goods here as they would ship surplus produce even at a loss on the exported goods until they had captured our markets. If an import duty were imposed prices would remain the same in the home markets by reason of the competition of the home manufacturers; greater continuity and therefore greater security would follow on account of the larger number of orders that would come to the home manufacturers; increased orders and output would result naturally in an economy of production; it would increase employment, as if trade increased more workmen and plant would have to be engaged, and it would increase the total amount of wages paid but not the individual rate of wages unless trade increased to a considerable extent and the men's unions claimed advances.

Robey & Co., Ltd., Globe Works, Lincoln; Engineers.

There should be a duty of 10 per cent. on steam engines of all classes. Prices in the home markets would not be affected by an import duty and owing to the small amount of steam engines imported there would be very little influence exerted in these respects.

Lindsay, Carverhill & Co., Wear Engine Works, Sunderland; Engineers.

Raw material and food should come in duty free but as soon as the foreigner puts labour into it such goods should be taxed in exact proportion to the amount of labour expended. For example iron
1096 ore, duty free, forgings and castings, 10 per cent.; machined engine parts 20 per cent., and finished machinery 40 per cent. Duties would tend to increase employment. Free trade is only good to the buyer, to the seller it is a great disadvantage. Unfortunately our people have to sell before they can buy, and worse still they have to maintain this country for foreign goods to be sold in. All raw material and foods should come into the country duty free, and all goods should be taxed in exact proportion to the amount of labour expended.

Brazil, Holborow and Straker, Ltd., Vulcan Ironworks, Bristol; Engineers.

Ten per cent. on all manufactured and finished goods would safeguard the interests of our trade. Owing to the fresh impulse given to home manufactures and consequent healthy competition amongst ourselves prices would not be materially increased by a duty. Greater economy and security in the home trade would be secured and the greater the turnover the cheaper the article would be produced, employment would be more regular and wages would increase slightly.

Firm No. **884.** Engineers.

This is a difficult question to answer as in the United Kingdom American machinery has only been introduced to a limited extent, but they have for some years sent no inconsiderable number of fixed engines into the United Kingdom, and of course they are free from duty whilst the United States tariffs charge us
1097 45 per cent. ad valorem. This is a case for arrangement and retaliation. American steam machinery should not be allowed free into our country whilst ours is taxed at a prohibitive rate, but we should always be ready to compete with an American tariff on equal terms or at a moderate duty against us. The question is one more of the mischief they inflict on our trade by dumping their productions in foreign markets which their extremely high tariff enables them to do with profit on their turnover. A small ad valorem duty in our opinion would not increase the cost of commodities in this country as the home competition would prevent this, but it would give security and continuity to our own trade and give increased employment and wages.

J. Fraser and Son, Ltd., Millwall Boiler Works, London, E.; Manufacturers of Steel Boilers, &c.

With the present free hand in buying raw material we do not want any duty, but of course if an import duty caused a rise in raw material we should want a protective rate against such combines that had lower priced raw material, say 10 per cent. on boilers, &c. The boiler manufacturers here have better machinery and do better work than foreign manufacturers. Want of protection has injured the trades of some of the people we supply and an improvement in any manufacturing trade makes us busy. The fluctuations of trade would not be altered by protection. In our business the cost of production is increased when trade is very slack and reduced when very busy. The British workman is not content to work steadily at a regular rate of wages; the desire is to work four days per week at a high rate of wages and to stop off the other two.

We do not think protection will make this nation any better. Protection will increase wages because more 1098
men will be employed and on the other hand we shall have less poor rate to pay.

Strong and Collings, Bermondsey Street, London, S.E. ; Boilermakers, &c.

There should be a duty of £1 per ton on angles, tees, sheets, plates, bars, &c. A duty should be placed on American and German steel to enable our own blast furnaces to be put to work. We think £1 per ton would do it. Lower railway rates inland are also wanted.

E. Bennis & Co., Ltd., Deansgate, Little Hulton, Bolton ; Manufacturers of Patent Machine Stokers, Furnaces, &c.

So long as all raw and partly finished goods are absolutely free we can easily compete in price and quality with any existing competitor. With an import duty prices would probably remain the same. There would be no difference in continuity and security of trade, but a duty would probably raise the cost of production and therefore tend to lower and lessen employment and probably lower wages eventually.

Thos. Middleton & Co., Ltd., Loman Street, Southwark, London, S.E. ; Engineers, Boilermakers, &c.

Should an import duty be imposed there is quite enough competition among home manufacturers to
prevent increased prices. Such duties could only act beneficially in securing greater continuity and security 1099
of trade. The increase of trade generally and the amount produced must tend to economy of production. This would be an additional reason why home prices would not be increased though profits might be larger. Increased trade must mean more hands employed and with better profits must lead ultimately to higher wages.

The Avonside Engine Co., Bristol ; Locomotive Builders.

If colonial duties were imposed against foreigners with a large rebate in our favour we do not consider the cost of locomotives sold for home trade would go up ; rather would prices fall as we should have more certain continuity of work and could therefore reduce the cost of production. We could employ more hands.

John Jackson & Co., Balmoral Iron Yard, Scotstoun, near Glasgow ; Dealer in Secondhand Machinery, &c.

A barrier in some form or other should be made against our raw material—scrap iron, coal, &c.—being shipped out of the country to the benefit of the foreign country (which reaps all the wages and taxation thereon) until our local manufacturers' demands are supplied at a reasonable rate and a like barrier should be made to prevent foreign manufactures coming into this country at less than cost, our country receiving no benefit either in the labour employed or in the taxation thereof.

1100

Firm No. **1,200.** Manufacturers of Crank and Straight Axles, Mill Shafts, &c.

The importation of iron and steel manufactures below cost requires remedial measures of the nature of a protective tariff which should be of such an amount as would not bolster up prices to an excessive artificial value by which our own country would suffer, but which would prevent continental works importing into our only markets at a rate which permits only a small profit being made. At present they can make a good profit in their own country, and are not in fair competition with ourselves. For standard tyres and axles we believe £6 12s. 6d. per ton is being quoted, delivered in this country, whilst in their own country they are quoting £10. A duty should be imposed on these of not less than 25 per cent. By such a duty prices would be raised by about 20 per cent. from the raw material to the finished article, and although not providing for a large profit would yet allow ordinarily equipped works to produce at a rate which would meet the cost of production and standing charges in addition to a small profit. It appears to us very probable that the duty could be abated after a period.

Gas Engineering

South Western Brass Foundry, Ltd., Mill Street, Plymouth ; Gas and Electrical Fittings Manufacturers, &c.

If duties were imposed goods would be sold the same, but made in England giving our English workmen full employment.

1101

Pollock, Whyte and Waddel, Johnstone, near Glasgow ; Gas and Oil Engine Manufacturers.

Any alteration in the present free import system would hurt our trade very much. We can buy our raw material in the best markets and any increase of cost either in this or wages would finish our foreign trade.

Motors and Cycles

Firm No. **6,661.** Ironfounders.

There should be a duty of 12½ per cent. on motors, steam valves and manufactured steel. The duty would not affect prices in the home market. It would secure the home trade but not alter cost of production as prices are cut very keenly at present without foreign competition. It would increase employment but not the wages unless there was an increase of trade.

C. H. Moore, 6, Adam Street, Adelphi, London, W.C. ; Merchants.

During the current 12 months I have imported motor cars to the value of £72,000 from Germany. I am not a manufacturer but a factor and importer of motor cars. Although I should lose heavily by the imposition of a protective tariff I should welcome such sacrifice in the interests of the manufacturers

1102 and workers of this country. I have found the sale of English-manufactured motor cars in the United States practically barred by the import duties there, while this market is flooded by cheap American cars.

Mechanical Engineering.
Motors and Cycles —continued

James Rickard & Co., Brentford, London, W.; Cycle Manufacturers and Engineers.

This is a very difficult problem. Of course selling goods at less than cost price is a form of fraud but to stop it there must be international agreements or we must appoint experts to each trade to properly value the goods as they arrive. We think this might settle the trouble which is very real. On motor cars, launches, motors, vans, lorries and fittings we would suggest placing a duty against each country similar to what each country places against our goods whether direct or indirect. Doubtless many articles would be higher in price but owing to increased business and the far greater employment of labour both for our own markets and abroad they would be far cheaper in the long run.

The Quadrant Cycle Co., Ltd., Sheepcote Street, Birmingham; Manufacturers of Motor and Ordinary Bicycles.

Imported cycles and motor cycles should be taxed 20 per cent. but a specific duty would be a better safeguard against dumping. If a duty were imposed our price for motor cycles would be reduced by at least 15 per cent. and our turnout would probably be doubled, as there would be more home trade and on
1103 reduced prices more colonial trade. At present we are compelled to cover our standing charges on the limited output, or shut up. The cost of production would be largely lowered if the plant were kept fully occupied. Short time is a great trouble for six months out of the year, and half the hands are discharged altogether. Colonial trade would be very valuable as it comes principally in the winter. Wages are very good compared with other industries. With a duty they might rise a little but the men want full-time.

The Roots Oil Motor and Motor Car, Ltd., Chicheley Street, York Road, London, S.E.; Motor Car Makers.

We suggest 15 per cent. on motor vehicles and parts thereof. If an import duty were imposed prices would probably remain as they are or only be very slightly increased but the position of the home manufacturer would be improved because fewer foreign cars would be imported. We do not see how the duty can reduce the cost of production in this country except by increasing production. It will increase employment by increasing the home manufacturers' sales, and might increase wages by increasing the demand for workmen.

Firm No. **629.** Motor and Mechanical Engineers.

25 per cent. on finished motor cars and 15 per cent. on goods and fittings partly finished would
1104 have no effect on prices in the home market as English supplies would meet the demand; but it would greatly strengthen the home trade as manufacturers would have more heart to launch out in labour-saving machinery and thereby promote economy. Much more labour would be required and there would probably be a 10 per cent. rise in wages, especially to the best mechanics.

Imperial Cycle Co., Ltd., Bromley Street and Hack Street, Birmingham.

We know of one firm who had about 1,000 cycles which were made in Belgium. If 15 per cent. had to be paid on the imports no doubt the business would have remained in this country.

The Raleigh Cycle Co., Ltd., Nottingham.

On cycles and motor cycles we want no duties except retaliatory ones against those countries which tax our goods. Duties on imported cycles will help us little now unless they are used against foreign Governments to make them reduce their tariffs. Ten years ago retaliatory duties would have helped us immensely in keeping a trade which we have lost in protected countries. Protective duties are too late to help us much directly but they will help greatly indirectly, our directors all believe, in improving our internal trade by improving the general trade throughout the United Kingdom and for the purposes of reciprocity with our Colonies.

1105 J. Appleby, Aston, Birmingham; Cycle Chain Manufacturers.

A duty on cycle chains of 50 per cent. and on steel press work of 25 per cent. ad valorem, would safeguard the interests of our trade. An import duty would have a considerable effect on prices in the home market, would secure greater continuity and security and would increase employment, but it would not tend to promote economy of production or increase wages.

John Marston, Ltd., Paul Street, Wolverhampton; Cycle Manufacturers.

A duty of 10 to 20 per cent. on bicycles would probably be unappreciable in its effect on price but would secure greater continuity of trade, promote economy of production and make the cycle industry less a season's trade. It would increase wages by giving more regular employment.

Connah & Co., Queen Street, Rhyl; Cycle and Motor Manufacturers.

Duties would enable our iron and steel works to have more regular orders and of course would increase employment and give better wages as our home manufacturers would not have to cut prices so much.

Hydraulic Engineering

Firm No. **1,476.** Engineers.

20 per cent. on hydraulic engines for organ blowing, and steel gas cylinders. If a duty were imposed our price would remain the same as now but we should hope to secure a greater measure of orders. This

would economise production costs and we should probably be able to reduce our selling prices. There 1106
would be more encouragement to increase plant, &c., if it promoted a feeling of security that articles would not be dumped from abroad. Increased production requires increased employment, and assuming no necessity to reduce selling prices increased wages become possible.

Beck & Co., Ltd., 130, Great Suffolk Street, London, S.E.; Hydraulic Engineers.

15 per cent. on cast and wrought iron pipes, and 20 per cent. on water meters and fittings, steam fittings and pumps. A duty would probably increase prices in the home market but it is doubtful if it would tend to greater continuity and security. It would not be favourable to economy of production, but would increase employment and wages.

Lacy-Hulbert & Co., Ltd., 91, Victoria Street, London, S.W.; Pneumatic Engineers.

There should be a duty of 20 per cent. on air compressors, vacuum pumps, gas and oil engines, petrol engines, and miscellaneous machines; 30 per cent. on combined machinery such as electric motor driven pumps, petrol driven machines, &c. The greater security of the home and colonial trade through a duty would in our opinion reduce cost of production, increase employment and probably raise the standard wages. The protected manufacturer would feel encouraged to develop his powers of production knowing that the duty would absolutely prohibit remunerative dumping.

Firm No. **1,576.** Engineers. 1107

A duty would raise prices slightly for a time as much unfair competition would be destroyed, and there would be great developments, building of works, making of machinery for them, &c. A duty would also tend to greater continuity and security in the home trade, rates and taxes would go down and manufacturers would become more enthusiastic about the adoption of improved methods. It would promote economies of production as foreigners could build works here and introduce new methods in many trades; our trades would improve by imitation and there would be a better chance for native skill and enterprise. A duty would increase employment all round and wages would rise.

Firm No. **486.** Engineers' Agents.

A so-called free trade policy obstinately adhered to whilst other countries practise protection is gross stupidity. At the same time I don't imagine that 10 per cent. or 20 per cent. duty on foreign-made goods introduced into this country is of itself going to bring universal sunshine into all our hearts. There are plenty of other things want looking to—a better system of production, better feeling between master and men, and improved moral and physical tone of the worker.

J. Evans and Sons, Wolverhampton; Hydraulic Engineers.

20 per cent. on steam engine governors. Duties would not increase prices in the home market
but would secure greater continuity in the home trade. They would not reduce the cost of production 1108
but would increase employment and wages.

Heating and Ventilating

Firm No. **1,562.** Ironfounders and Heating Engineers.

Radiators should be taxed from 10 to 20 per cent. If a 10 per cent. duty were put on radiators we should not increase our selling price; but it would prevent United States' goods being dumped here and so we should have more continuous employment for our men who at present are very short of work. We could then make more cheaply than at present by having a larger trade in radiators and so could employ more men and pay them better wages. The United States' factories being on a much larger scale can produce more cheaply than ours and so would pay the duty and still sell at present prices.

Newcastle-on-Tyne and District Operative Whitesmiths' and Heating Engineers, 12, Richmond Street, Gateshead.

Our trade is in a flourishing condition, and we are of opinion that free trade is best for this country.

Firm No. **1,297.** Heating Engineers.

Import duties would have a favourable effect on prices in the home market, employment would be
increased and employers would be in a better position to increase wages. 1109

Firm No. **1,093.** Heating Engineers.

We are told by men who have seen the prices, that we buy radiators and boilers (cast sectional) as cheap as engineers do in the United States. If 10 per cent. were added to the cost of foreign boilers, then our ironfounders would reap the benefit in orders, provided they continued to make as good or better articles.

Miscellaneous

Joseph Richmond & Co., Ltd., Watermoor Foundry, Cirencester; Engineers, Manufacturers of Cranes, &c.

Through an import duty there would be an improvement in the prices although not to any great extent because it might lead to many of the foundries which are now closed being reopened. There would be greater continuity and security in the home trade. At present it is very spasmodic. A steady run of trade would reduce the cost of production and increase employment and wages.

Steel Barrel Co., Ltd., Uxbridge.

The effect of a duty would be to maintain fair prices in the home market, to secure a steady and increasing home trade and by increased turnover to reduce cost of manufacture and so enable us to possibly

1110 **Remedial Measures Required and Their Effects**

sell cheaper than now. By increasing turnover more workpeople would be required. Wages would not fall but would probably rise in the more skilled departments if the turnover were greater. The foreigner being kept out we could buy British steel which we should prefer on the score of quality. We should be in a position to sell abroad at lower prices on a reduced cost of production, thus further increasing employment here.

Mechanical Engineering. *Miscellaneous —continued*

B. Noakes & Co., Spa Road, Bermondsey, London: Iron and Steel Cask Manufacturers.

There should be a duty on iron and steel casks, drums and barrels of 25 per cent. Prices in the home market would not be affected, but trade would be secured which at the present time goes to Germany, France and Belgium. The cost of production would not be reduced but employment and wages would be considerably increased.

Accessories

E. H. Birley & Co., 75, Barton Arcade, Deansgate, Manchester ; Engineers, &c.

25 per cent. on injectors and condensers. All imported articles should pay such duty as would put them on the same basis as those manufactured in England and to the extent that English makers have to pay in rates, rent and taxes.

Firm No. **968.** Iron and Brass Founders.

Tax all manufactured goods imported from foreign countries. If we had an import duty prices
1111 would rise ; a larger quantity could be produced cheaper ; a greater number of hands would be employed, and steady supply would tend to increase wages.

Sydney Smith and Sons, Basford, Nottingham ; Brass Founders, Steam Gauge Manufacturers, &c.

We would suggest that such a duty be placed on imported goods as would bring the prices up to the normal figures ruling the prices of British-made goods of the same value here. There should be a duty of 15 per cent. on steam gauges, brass and iron valves, brass and iron cocks, lubricators, whistles, injectors, ejectors and many other boiler mountings. If we had an import duty an increased trade in the home market for our goods would tend to maintain prices at a fair and reasonable rate and prevent ruinous competition. It would give more employment to artisans and others. It would not reduce the cost of production in the shops but would by an increase of turnover reduce the cost of office staff and working expenses. When there is plenty of employment wages have an upward tendency.

The Castleton Steam Packing Co., Broadheath, near Manchester ; Manufacturers of Steam and Hydraulic Fibrous Packings.

We cannot see how dumping is to be stopped unless by a duty ; at the same time we are strongly of opinion that if all goods had to have the name of the country of origin plainly marked thereon it would materially help the home manufacturers. The duty should be such as to equalise prices. The principal
1112 packings sold in this country by the German manufacturers are chalk and asbestos, the former being sold at 17s. and the latter at 56s. to 60s. per cwt., whereas the lowest English prices are 28s. and 70s. respectively. The majority of British manufacturers are selling at practically the same prices. An import duty would not alter prices as competition between our own manufacturers would always keep prices at a reasonable level. If the foreign makers were on our level in prices our manufacturers would always have the preference. If the cost of the raw material were higher this would naturally affect the selling price, but a larger trade would also reduce the cost of making. It would mean increased employment and enable us to give better wages.

The United Asbestos Co., Ltd., Dock House, Billiter Street, London, E.C. ; Manufacturers of Asbestos Goods.

This company and the asbestos trade generally has suffered very greatly from the importation of so-called "cheap" adulterated goods of foreign manufacture, which are dumped here at prices which barely cover our prime cost of manufacture. We think sufficient protection would be afforded if the same tariffs were imposed on foreign goods imported into this country as are imposed upon exported British manufactures by other countries, but in addition to this we think that the prices at which goods are invoiced by foreign manufacturers to buyers in this country, and upon which price the duty would be calculated, should be declared to be the fair market price in the country of origin. Such a declaration
1113 is required by the United States upon imports into that country and prevents goods being imported or charged at less than their proper market value, and heavy fines are imposed in the event of declarations being found to be incorrect.

An import duty would make little difference in the prices charged for home made goods inasmuch as the larger production would result in economy of manufacture, while at the same time we should be able to give more employment to British artisans. Even if prices are fractionally raised consumers would be better off, as British-made goods are much superior to adulterated foreign manufactures. It would result in greater continuity and security in the home trade. A larger output means reduced cost of production and also increased employment, but this would depend upon supply and demand. There is a vast amount of unemployed labour in this country and although wages might not be increased poor rates would be reduced and the country generally benefited by the change. The amount of wages paid by this company would be increased by from 25 per cent. to 50 per cent. with proper protection to home industries.

Firm No. **442.** Iron Founders, Machinists, &c.

Duties would cause no change in prices. Increased quantities would enable us to turn out the work cheaper and employ double the present number of men. We should not contemplate an increase in wages for time workers but piece workers would earn more owing to better employment.

Industrial Engineering.
Machine Tools

C. TAYLOR, BARTHOLOMEW STREET, BIRMINGHAM; Engineers and Lathe and Machine Tool Makers. 1114

There should be a 20 per cent. duty on lathes and other machine tools and small engineers' tools Import duties would slightly increase prices in the home market, and would increase employment and raise wages. They would have a good effect in securing greater continuity and security in the home trade.

FIRM No. **554.** Machine Tool Makers.

On mechanics' and general engineers' workshop machinery we should impose a duty equal to that imposed for admission of our machines to the United States and Germany. If duties were imposed prices would be increased a little from present basis for home trade in bad times, because it is not likely that German, American and British iron trades would be all bad at one time: if foreign tariffs were consequently reduced a better average of trade would be maintained and this would result in economy as there would be less standing charges against goods sold, as was the case previously from alternations of large business for small works and small business for large works. Employment would not be seriously affected in the aggregate and there would probably be a slight increase in wages.

FIRM No. **630.** Engineer.

On steel files and machine knives the duty should be only the difference between prices in the country
of production and the "dumped" prices charged within the British Empire. We ask no protection, 1115
only a fair field and no favour, and if we cannot hold our own then we are prepared to go to the wall.

If duties were imposed our prices would be based on a fair profit on cost and would not be brought down to an unremunerative level by outside "dumping." Dumped prices set the market price for the day. This unfair competition being withdrawn within the Empire we should confidently look for greater continuity and security in our business. The larger output would reduce the cost of production and lead to steadier and increased employment, but no immediate increase of wages. At present rates our men (being mostly specially skilled workmen) can make wages much beyond the average. The drawback is lack of constant employment through unfair foreign competition.

FIRM No. **907.** Manufacturers of Engineers' and Machinists' Tools.

There should be a minimum duty of 10 per cent. on machine tools, hand tools, such as twist drills, stocks, dies and taps, spanners, wrenches, vices and milling cutters and rinsers. Prices at home would be slightly raised but not to the full extent of the duty. There would be a more regular demand for a larger volume of our productions and the increased demand would reduce the cost of production. An increased demand for skilled labour would follow. Wages would rise at first, but as more hands become skilled wages would probably gradually fall to their present rates.

FIRM No. **8,007.** Machine Tool Manufacturers. 1116

There should be a 10 per cent. duty on twist drills, stocks, dies and taps, screwing machines, milling cutters, adjustable spanners, single and double end spanners, pipe wrenches and vices, vices and machine tools. The duties would have no effect on prices but would probably tend to greater continuity and security in the home trade. With the increased demand which would naturally arise we could produce cheaper by 5 to 10 per cent. and should probably be able to increase our hands 20 per cent. Day-work wages would not increase but piece-workers would earn more through the larger production.

J. M. HERBERT, 2, WARREN MEWS, FITZROY SQUARE, LONDON, W.; Engineer.

A duty would enable makers to keep their home trade at increased prices and in increased quantities in competition with foreigners. Orders being more sure will enable machinery to be fully employed and make articles cheaper, but at the same time the duties would enable makers to sell at a larger profit. Then if worth it others would enter into the business and employ more machinery. I do not think they would compete with one another too severely in that event. Wages would go up with increased sales and profits.

FIRM No. **1,489.** Engineer.

If duties were imposed we should obtain a living price; there would be continuity and security 1117
in the home trade, the cost of production would be reduced as there would be a larger output on the same establishment charges, there would be increased employment and wages would go up.

FIRM No. **1,128.** Manufacturers of Rolling Mills and Engines, Forging Presses, &c.

The steadying effect of duties upon our home production of steel and iron would lead to great expansion in the trade, old plant would be replaced, better methods would be employed and the fear of foreign importations under cost being removed more money would be laid out in perfecting our equipment. This in its turn would promote economy of production, increase the volume of business, provide more employment and thus increase wages.

EDWARD WHITE, WINDSOR WORKS, REDDITCH; Engineer and Ironfounder

If duties were imposed the home market would be improved and there would be more security for capital to be spent in introducing the best machinery and methods of production and consequently increased labour would be wanted and better wages would be paid, masters then knowing they would not be undersold by people who do not contribute towards the rates and taxes of the country. There is ample home competition to prevent prices being raised abnormally.

Remedial Measures Required and Their Effects

Industrial Engineering. *Machine Tools —continued*

1118 A. A. TATTERSALL, MILL HILL EMERY WORKS, BLACKBURN; Emery Wheel and Emery Machine Maker.

Put the same tariff on American and German-made wheels and machines as they put on ours and I should require to double and treble my works in a very short time with less expense and time in soliciting orders.

E. B. GRANDAGE, LONGSIDE LANE TOOL WORKS, BRADFORD; Gas and Steam Fitters' Tool Maker.

A protective tariff is an absolute necessity for the tool trade in order to prevent its entire decay. Finished goods in the way of tools should have to pay a duty of 25 per cent. or more on entry in to the United Kingdom; or, if possible, should have to pay a duty equal to the duty imposed by other countries into similar English tools going there. The effects would be:—Prices in the home market would remain the same, owing to there being sufficient competition amongst home manufacturers. It would bring more regular work to my own workmen, who are not regularly employed full time; it would enable home manufacturers to produce a lot more goods and would consequently reduce the production cost; it would probably very soon create a demand for more workmen. In busy and full-time work the workmen can always command higher wages and piece-work rates.

LUKE AND SPENCER, LTD., BROADHEATH, NEAR MANCHESTER; Manufacturers of Emery Wheels, &c.

We should much prefer a tariff imposed by Britain and Colonies sufficiently prohibitive to secure the
1119 markets to British and Colonial manufacturers, rather than any reduction of foreign tariffs.

Agricultural Implements

G. HATHAWAY, CHIPPENHAM; Dairy Machinery Manufacturer.

We could do more trade with an import duty and therefore we could reduce our prices. Duties would tend to reduce the cost of the articles we manufacture, we could employ more men and could pay more as all our work is paid by the piece.

E. PRATT & CO., LTD., ALBERT IRON WORKS, GEORGE STREET, UXBRIDGE: Agricultural Implement Makers.

10 per cent. on mowing machines and agricultural implements. The imposition of duties would cause our prices to become slightly lower. When we knew the probable number of implements we could sell annually we could make them 5 per cent. cheaper. This would enable us in two years to increase the number of men employed by 100 per cent. and to increase wages by 5 per cent.

J. ORGAN, OLVERTON, TOCKINGTON, GLOUCESTERSHIRE; Agricultural Machinist, &c.

I am strongly in favour of protection especially on manufactured goods imported. As we cannot get universal free trade we must adopt the same policy as other countries. The foreign manufactures are so cutting down prices of agricultural machinery that there is nothing in it for agents or manufacturers in this country.

1120 FIRM NO. **471.** Manufacturers of Grain Handling Machinery.

We think that the result of imposing a duty on imported flour would mean a largely increased importation of grain with consequent increased call for such machinery and increased employment in this country both in connection with grain storing and milling. An import duty of 10 per cent. would stop the importation of machinery which is really not so good nor so suitable for home requirements as can be obtained in this country, and the result would be increased employment to a proportionate extent. The importation is so small that it would not affect prices nor increase wages.

RICHARD GARRETT AND SONS, LEISTON WORKS, SUFFOLK; Makers of Steam Engines, Boilers, &c.

On threshing machinery 5 to 10 per cent. duty would be a discreet safeguard to the trade but there is practically no competition from foreign makers in this country at present. We do not anticipate that any immediate alteration in prices would be experienced from an import duty.

FIRM NO. **1,086.** Agricultural Engineer.

As the cost of a finished agricultural implement is 90 or 95 per cent. labour (the value of the raw material when in the ground is very little) a heavy duty should be put on foreign implements so as to keep our men employed.

1121 RANSOMES, SIMS AND JEFFERIES, LTD., ORWELL WORKS, IPSWICH; Engineers.

The duties should be at least 10 per cent. both here and in the Colonies. The effect of duties would be we should secure the home and Colonial trade and ensure a continuity of work, which the foreign tariffs are now endangering. It is not a question of increasing but maintaining wages and a continuity of employment for the working man, but we believe the tendency would be to increase his wages as well.

BLACKSTONE & CO., LTD., RUTLAND ENGINE WORKS, STAMFORD; Engineers, Agricultural Implement Makers, &c.

Upon a fair basis of give and take probably 15 per cent. on the value would be sufficient, but we would suggest that where one-sided hostile tariffs have to be met it would be necessary to charge the same rate as the foreign country charges upon similar goods. The imposition of duties would have no effect on prices if the tariff were moderate but would tend to promote economy of production.

FIRM NO. **1,597.** Engineers and Iron Founders.

There should be an import duty of 25 per cent. on agricultural machinery and implements. An import duty would have no effect on prices of English-made machines but it would tend to greater continuity and security in the home market and would increase employment.

1122 LEY'S MALLEABLE CASTINGS CO., LTD., DERBY.

Almost all our work is done "piecework" and the prices we pay are identical with those paid in the United States, but owing to its jobbing character our output per man is only about two-thirds that in the United States. We cannot keep the men on a job sufficiently long to make them expert at it, and our men only earn a corresponding amount in wages to that of the output. If by putting a 15 to 20 per cent. duty on agricultural implements you can increase the output then the demand for our malleable castings is correspondingly increased, and by putting down special machinery and our men getting more experience we could reduce our selling price, which would be of substantial assistance to the agricultural implement maker in reducing his cost of production.

MILNE AND MACDONALD, LOCKERBIE; Agricultural Machinery Importers.

We sell far more foreign goods than home and any duty levied on foreign goods would be detrimental to us, personally, but the welfare of our country must be considered first.

FIRM No. **C 593.** Agricultural Engineers.

Foreign markets are being steadily closed to our trade by hostile tariffs and without some weapon such as a tariff our representatives must always be powerless when negotiating with foreigners.

1123 HUGH THOMAS, VALLEY FOUNDRY, VALLEY, ANGLESEA; Manufacturers of Agricultural Implements and Quarry Machinery.

The effect of import duties would be to advance prices slightly. There would be greater continuity and security in the home trade which would be placed on a substantial basis. Duties would undoubtedly tend to promote economical production owing to increased home competition, thereby benefiting our own rather than foreign nations, and would increase employment and the annual receipts of the employees.

Mining Machinery

J. DAVIS AND SON, DERBY, LTD., ALL SAINTS WORKS, DERBY; Manufacturers of Mining Instruments and Apparatus.

Although we import machinery and apparatus for mines for re-sale from the United States and Germany we feel that an import duty of 10 per cent. would not disadvantageously affect us while benefiting the British revenue. The probable effect would be that the foreign manufacturer would proportionately reduce his export price, as we have found that the foreign manufacturer will adjust his price to compete with our home manufacturer.

C. E. HALL, 58, FOSTERS BUILDINGS, HIGH STREET, SHEFFIELD; Manufacturing Mining Engineer.

1124 I would suggest as remedial measures—preferential tariff on all goods and machinery to the Colonies on each side; taxes upon all non-British and Colonial manufactures of 10 to 15 per cent.; an equality of railway and carrying rates between Great Britain and foreign ports, for equal distances equal rates and more uniformity in passenger rates, by taxing continental boats using our ports; by continuing the export duty on coal to continental ports; better business methods here; more specialisation of our manufactures after the American fashion; better system of payments by results and less day work. The law here requiring the standard wages and hours of work permitted here should bind foreign manufacturers in tendering for municipal contracts to observe the same wages and hours, or that such contracts should bind municipal bodies to buy all British manufactured goods because it is public British money. This duty would not increase the selling price of the home-made article, on account of internal competition, but it would bring up the prices of foreign-made machines to more of an equality with ours. The continental methods of payments by results and after a thorough and exhaustive trial is better than ours and secures for them trade which we cannot get unless we can adopt similar measures.

FIRM No. **1,506.** Manufacturers of Mining Machinery.

If duties were imposed home competition would suffice to keep prices as at present. Foreign competition is only occasional and has no general disturbing influence.

Textile Machinery

HETHERINGTON AND ANDERSON, NOTTINGHAM; Textile Machinery Agents.

1125 We are not manufacturers but importers of German machinery and yarns from the Continent. In putting a duty on these it would go against us. All the same we believe it would be for the benefit of the country generally if Mr. Chamberlain's scheme gets carried out.

G. A. BINNS, ARCHER STREET, HALIFAX; Manufacturer of Machine Combs for the Textile Trade.

Taking into account the competition amongst ourselves and making every allowance for same a tariff should be put upon all incoming manufactured goods sufficient to bring them to the same cost as our own and no more. To do as other nations are doing would only upset things for a little time. Things would soon right themselves. The country in a very short time would see the benefit and it would wonder why we had not done the thing sooner. If we were not undersold an import duty would undoubtedly put more work into the hands of our people; with more work things would be better all round.

E. NEWELL & CO., LTD., MISTERTON, GAINSBOROUGH; Engineers, Millwrights and Ironfounders.

Import duties would make no difference in prices in the home market but our turnover would be quadrupled, we could make a reasonable profit and extend our business to the advantage of ourselves and those employed by us, we should be able to considerably reduce the cost of production, we should require considerably more men and eventually wages would go up.

1126 J. Petrie, Junr., Ltd., River Street Iron Works, Rochdale; Manufacturers of Textile Machinery.

The effect of a duty would be that we could then put our prices up and make more profit out of the users if goods that we consume were not taxed. It would probably lessen our output and would certainly not promote economy of production but would lessen employment and reduce wages.

Industrial Engineering.
Printing and Paper Machinery

W. E. Cook, Turnagain Lane, London, E.C.; Printers' Furnishers.

There should be a duty of 25 per cent. on printing machines (cylinder and platen), card box-making machinery, book-binding machinery and wire stitching machines; 20 per cent. on types and metal ornaments, printers' brass rules and joinery; 15 per cent. on roller composition; and 10 per cent. on paper-cutting machines.

American joinery is deservedly appreciated on account of its convenience, economy of space and design. The popularity of card box machines is due to greater speed rather than price. Copies are being made in this country of the cylinder printing machines but confidence in copies is by no means general. The foreign productions sell on their merit. In book-binding machinery we have brought out nothing for years and American and German rivals almost monopolise our market. Wire-stitching machinery is a wholly foreign industry. Every wire-stitcher is imported, 99 per cent. from Germany. If duties were imposed prices would not exceed the foreign and the goods would probably be cheaper to users and a larger trade would be likely to follow by reason of the easy terms of payment which the home manufacturer generally accords. The introduction of a home production rivalling the imported
1127 should certainly make for greater continuity and security of the home trade if the home manufacturer shows initiative and enterprise, qualities much rarer than they should be. I do not think cost of production would be reduced as the manufacturer does not control rent, taxes, wages or price of fuel and any reduction on other establishment charges would not materially affect cost. Employment would undoubtedly be increased and the demand for labour tend to its greater recognition.

Bertram's, Ltd., St. Katherine's Works, Sciennes, Edinburgh; Makers of Paper Mill Machinery, &c.

There should be a duty of 10 per cent. on paper mill machinery, rubber machinery, linoleum machinery, machine tools for iron trade, condensing plant and steam engines. By an import duty prices would be slightly higher in some cases but in no case higher than a legitimate value held amply in check by British competition. Home trade would benefit by fewer orders going abroad except for patents or special design, which is healthy competition. Cost of production would not be reduced by imposing import duties. Increased and steadier employment and better wages would follow the increase of trade and lessening of unhealthy foreign competition.

James Bertram and Son, Ltd., Leith Walk Foundry, Edinburgh; Manufacturers of Machinery for Paper Mills, &c.

If wood pulp were admitted free as a raw material and a duty put on paper there would be a
1128 large increase in the number of paper mills and consequently much machinery would be required and more men employed both in the mills and engineering works.

Firm No. 828. Paper Machine Wire Makers.

There should be a duty on paper machine wires of all meshes and materials of 20 per cent., *ad valorem*, Prices would in our opinion remain the same, but the duty would secure greater continuity and security in the home trade, the cost of production would be reduced by the greater volume of business, employment would certainly increase and wages would be more likely to increase than decrease.

Laundry Machinery

J. and A. McFarlane, Ltd., Spring Bank Street, Glasgow: Manufacturers of Laundry Machines, &c.

20 per cent. on wringers, and 10 per cent. on freezers, dairy and household utensils, general woodware, and household ironmongery. At the same time we would be quite prepared to let in free the manufactures of all countries that were willing to put us on same terms. Under a complete free basis we do not believe the dumping process would work and we would have the compensation of being able to do some business with such countries whereas at present we are completely shut out by their tariffs. Duties would give fresh heart to the home manufacturer securing him against dumping and unfair competition, even
1129 intermittent dumping is sufficient ultimately to destroy any trade, and above all it would give him a sufficient guarantee, so much wanting at present, to lay out money to keep his plant up-to-date. Employment is bound to increase and consequently wages. Increased cost of production, as in America, would be more than balanced by improved machinery. No doubt some articles which suffer most by unfair foreign competition would rise in price but the encouragement given to home production would increase home competition and keep a healthy check on prices. In addition to our own manufactures we support many home makers of household goods. We also import largely from America, France and Germany and we would feel a duty adversely for a time, but we are so impressed with the absolute necessity of maintaining the productive power of the nation that we are willing to put up with any loss which might occur, feeling confident that matters would adjust themselves satisfactorily in a short time and that a distinct advance in national prosperity would be the result.

J. Appleyard, Harris Street, Bradford; Laundry Engineer.

There should be a duty of 45 per cent. on laundry machinery, belt-making machinery and machine tools. If duties were imposed we should be able to get a better price for the stuff we are making and not be working for nothing. We should get the bulk of the home trade. The duties would give a general all round employment and be beneficial to the workman who would get value for his work.

Thomas and Taylor, Ltd., 99, Fonthill Road, London, N.; Works: Stockport; Engineers. 1130

Laundry machinery should be taxed the same amount as we have to pay to enter foreign countries. An import duty would secure continuity of trade in and for the home market. Prices would remain the same. The cost of production would be reduced as instead of making machines in ones and tens we should make them in hundreds. Increased employment would naturally follow and wages would (as they have been doing for years) continue to increase. The Board of Trade returns show the amount of imported laundry machinery for the past year, all of which could have been made in the British Isles and would have been if a duty had been imposed equal to that we have to pay to go to their ports.

Heriothill Rubber Co., Dunedin Street, Edinburgh; Wringer and Rubber Manufacturers.

No special measures are required except a duty on imports here or free competition in markets of rival manufacturing countries. 10 to 15 per cent. on wringing machines would be sufficient. A duty would not materially increase the price in the home market but would tend with increased trade to reduce on-cost. Increase of wages would follow. The serious inroads made on wringing machine trade by American competition has tended to reduce employment in home manufacturers' works.

G. Kent, 199 to 204a, High Holborn, London, W.C.; Manufacturer of Domestic Labour-Saving Machinery. *Miscellaneous*

Home competition is a safeguard against undue increase of price under import duties. Home production 1131
would be increased and conducted on more advantageous lines to producer and consumer alike. Production in quantity permits of the expenditure of capital upon scientific and economic methods of manufacture. Wages would probably be higher and would certainly be more sure.

A. W. Paton & Co., 41, Reform Street, Dundee; Typewriter Factors and Merchants, and Manufacturers of Duplicators.

If a duty were imposed prices would practically remain the same. The duties would probably evolve a comparatively new industry in this country and would therefore provide employment.

Bishop's Cluster Co., Ltd., 14, Golden Lane, London, E.C.; Sewing Machine Accessories Manufacturers.

If duties were imposed it would raise the price to the consumer and compel them to buy an inferior article at a dear price.

Brown and Ward, Branston Street, Birmingham; Engineers' and Jewellers' Machine Tool Makers.

To prevent the import of foreign manufactures below cost price in the country of origin it is necessary to put a duty on them. On jewellers' machines and tools we desire equal duties and the same facilities for us to get our goods to foreign countries as they have to ours. Though duties were imposed the prices in the home and foreign markets would be the same as far as we are concerned.
It would mean more sale for our goods therefore more employment at home, as the foreign maker 1132
could not cut us in price and quality except at a loss to himself.

Davidson & Co., Ltd., Sirocco Engineering Works, Belfast; Makers of Machinery for the Manufacture of Tea Leaf, &c.

A 10 per cent. ad valorem import tariff would be sufficient to enable us to withstand German competition. Our patents (which constitute a strong but terminable protection) effectually prevent competition in regard to our own specialities. The higher rates of wages in America will still, when our patents expire, prevent American firms importing our specialities into this country, as in the meantime during the term of our patents our adoption of labour-saving appliances in addition to the cheaper labour in this country will enable us to retain our developed business and minimise subsequent competition from America. But German competition may affect us seriously unless by that time a retaliatory tariff were in force.

Harvey Engineering Co., Ltd., Scotland Street Engine Works, Glasgow; Engineers.

We suggest a duty of 5 per cent. on all sugar machinery from Holland, Germany, Austria and America imported into any British Colony where such machinery is used. By an import duty the demand for sugar machinery made in Britain would be increased, employing thereby more labour and giving greater
continuity of employment. 1133

J. M. Herbert, 2, Warren Mews, Fitzroy Square, London, W.; Engineer.

There should be a duty of 10 per cent. on wood-working machinery, dental machinery, lathes, drilling and metal-planing machines, emery and polishing machinery. Raw materials should also be made to pay duty. Besides duties on manufactured goods sellers should have to sell foreign goods as such and not as British-made as is now done, purchasers having no knowledge of their origin.

Firm No. **630.** Manufacturers of Wood-working Machinery, &c.

Charge all goods the difference between selling prices in country of origin and prices of same goods offered here.

James Oates, 33, Trinity Street, Huddersfield, Yorks; Manufacturers of Wallpaper Trimming Machines, &c.

Knowing what these machines cost to produce and looking at the higher rate of wages that must be paid for making them in America we should say that they are sold here if not below cost at the merest fraction of profit to the makers, so as to enable them to make larger quantities at a time and so make

1134 **Remedial Measures Required and Their Effects**

up the loss by heavier profits on their home sales. A duty of 10 per cent. would stop their import. As the effect of this duty our price might be lower as we could make a larger quantity of machines at one operation, thereby lowering our cost of production. The duty would give greater continuity and security to our output as we should gain the orders at present given for American machines which are sold here at same prices as ours. We could employ more hands and probably increase wages.

Industrial Engineering. *Miscellaneous —continued*

W. Johnson and Sons, Leeds, Ltd., Armley, Leeds; Engineers, Manufacturers of Cement Machinery, &c.

We do not think that cement machinery is sold here at a loss; it is sold at a price at which we could make a good profit if we had the quantity to manufacture that our German, &c., competitors have. We might point out that they charge much higher prices in their own countries but the tariff against us prevents our competing. We have ample room for development, but no prospect of warranting development unless a duty is levied. A minimum duty of 15 per cent. on cement machinery would safeguard the interests of our trade. If a duty were imposed prices would actually be lower. We believe English makers would secure the whole of the trade in cement-making machinery. The cost of production would be reduced fully 15 per cent. owing to manufacturing many machines of each type instead of a few now and then. This machinery specially lends itself to economy in production by manufacturing large quantities. We estimate that at least 1000 to 1500 more skilled engineers and their complement of unskilled men would be required if German and American cement machinery were subject to duty. The increase of wages we should be pleased to guarantee as far as we are concerned. 1135

P. Rogers & Co., 48, Green Street, Birmingham; Scale and Weighing Machine Manufacturers.

Special measures are required to prevent the importation of foreign goods below cost price. A tariff of 15 per cent. on French balances, German drug scales and small box scales and 10 per cent. on American platform machinery would be sufficient to safeguard the interests of our trade. Import duties would lead to a better sale of British goods in the home market, and would secure and maintain home trade. The cost of our production would remain the same or little less owing to quantity of articles being increased. Employment and wages would be increased.

Firm No. **10,365.** Brewers' and Bottlers' Machinery Makers.

Foreign goods are sold in England cheaper than they are in the countries of origin. A duty on our imports would benefit our trade as it would keep down dumping. Small, impecunious, Continental manufacturers would stop sending goods here at ruinously low prices.

Colonial Preferential Tariffs

1136 (J) Colonial Preferential Tariffs

Question 13 (Form VIII.): *What is your experience with regard to the effect of colonial or other preferential tariffs?—If benefit has arisen to your trade, please give specific details and illustrations.*

In addition to the replies printed below 5 are in favour of preference, 1 is against it, 7 state that no benefit has accrued from preference, and 8 are not affected by existing preference owing to their goods being patented, their business being done through shippers, &c.

Structural Engineering

Firm No. **1,323.** Manufacturers of Iron and Steel Girders, &c.

The preferential tariff has been of no benefit to us, as Canada, Australia and New Zealand are self-supporting for our products. In New Zealand in particular the Government insists on everything possible being made in the Colony even at a higher cost, and the poles used by the railway and telegraph departments are all of local manufacture. Our Colonial sales are chiefly to India and the Cape Government Departments.

Firm No. **473.** Structural Engineers.

The Canadian preferential tariff has undoubtedly been of service to us in our business with Canada, and the new Canadian tariff cannot fail to still further increase the quantity of our manufactures which
1137 will be exported to Canada. Speaking generally German and American dumping has been of some temporary benefit to ourselves and other firms who use steel bars; but our position throughout has been that we consider the advantage which would be obtained by preferential tariffs in protecting our Colonial markets from such dumping would more than compensate for the advantage of occasionally obtaining the steel bar below its cost.

Electrical Engineering

Davies, Kent and Stewart, Ltd., 17, Berners Street, Oxford Street, London, W.; Manufacturers of Electrical Accessories, &c.

A tariff preference on the part of the Colonies would be a great assistance. It would induce engineers to make inquiries in this country and lead to considerable business. We do not find much business in Canada owing to the proximity of the United States and the influence the latter naturally have in electrical matters resulting in accessories and fittings being in accordance with patterns used in the United States. Owing to the greater strictness of English fire insurance offices our accessories and fittings used in this country are much superior, better made, and more safe than those installed on the other side.

East Anglian Engineering Co., Ltd., Stowmarket, Suffolk; Electrical Engineers.

Without preference our manufacturers cannot successfully compete against cheaper foreign labour, longer working hours and larger outputs.

FORD BROS., 12, SOUTHAMPTON STREET, FITZROY SQUARE, LONDON, W. ; Dealers in Electric Light Plant. **1138**

We have experience only with Natal where a slight advantage is given in the form of a rebate of 2½ per cent. on goods of British manufacture ; we do not consider this enough. We are quite in sympathy with the principles of preferential tariffs but they should be sufficient to secure its object.

FIRM No. **1,584.** Electrical Engineers and Founders.

Our business with the Colonies during the last 6 months shows signs of revival as regards South Africa, Canada, New Zealand and India.

G. CHRISTIE, LTD., 197, BROOMLOAN ROAD, GOVAN, GLASGOW ; Wire Drawers, &c., Manufacturers of Dynamo Brushes.

Because of the preference given to British goods our exports to Canada have very much increased of late, being at present quite double what they were three years ago. The South African preferential tariff helps us considerably there so that competition from United States and Germany is not much felt. Very little competition is experienced by us in Australia and New Zealand. German competition has been felt of late in India and as a result our exports are decreasing somewhat.

FIRM No. **956.** Electrical and General Engineers.

1139 The working of the Canadian preference has enabled us within the past two years to build up a considerable business in Canada which will no doubt largely increase in the future. The fact that we have been able to develop a large business in South Africa and Australia we attribute principally to the growth of Imperial feeling in those Colonies which has tended to extend itself in a sentimental preference where an actual fiscal preference does not yet exist.

P. WALTERS & CO., 249 & 251, KENSAL ROAD, LONDON, W. ; Electrical Engineers and Contractors.

If a preferential tariff were placed on electrical goods generally by our Colonies we should be in a position to compete with Germany.

FIRM No. **1,368.** Electrical Engineers.

Preference has proved a great and invaluable help in enabling us to increase our hold on Canadian business against United States competition. Prices being equal and quality at all similar the orders would go to the States, owing to our longer time in delivery, were it not that the preference makes it an advantage to the buyer to place his orders here. English electrical apparatus being generally of higher quality than that made in America the price would be proportionately higher were it not for the preference. The preference in South Africa is equal to a cash discount to the buyer, with the result that when the price is finally cut, the preference is just sufficient to influence the order in our favour. We hope that an increased preference will be given in the next South Africa tariff. It would be more advantageous if the tariff were raised generally, as in that case the preference would more distinctly operate in favour of the United Kingdom. **1140** In New Zealand the tariff has apparently been framed with a view to preference being made to the United Kingdom on material in which it is not of great value. We have not yet felt its benefit, possibly owing to the fact that there seems to be rather more interest in buying British material in New Zealand without the necessity of financial reasons for doing so. An important point which should be embodied in every preferential tariff is that the 25 per cent. British labour should not include any percentage of profit, but should be solely labour occupied in the production of the goods. This clause has with advantage been embodied in the Canadian preferential tariff and has efficiently stopped a loop-hole for foreign material coming in at the lower duty.

JOHN ROGERSON & CO., LTD., WOLSINGHAM, R.S.O., CO. DURHAM ; Manufacturers of Castings and Forgings for Ships and Electric Dynamos.

The requirement of Canada for our class of goods is never likely to assume large dimensions. The small amount of preferential tariff granted us by South Africa is much too small to turn the tide of orders in our direction.

FIRM No. **960.** Electrical Engineers.

In Canada we have felt considerable advantage from the preference, and look for some further help from the increased preference on several sections of electrical manufactures which has just come into force. **1141**

Marine Engineering

FIRM No. **81.** Manufacturers of Ships' Boiler and Condenser Tubes, Pumping Engines, Marine Pumps, &c.

If all our Colonies gave the Mother Country some preference it might compensate us for providing ships, soldiers, sailors, &c., as all manufacturers are taxed to find the funds necessary whereas the foreigner gets off free and can easily beat us in what should be our own markets. Foreigners do not open the door of their colonial possessions to us, and we should therefore treat them as they treat us. The amount of manufactured goods sent by foreigners to our Colonies runs into millions, and if we can secure this trade it would find employment for a large number of men.

Mechanical Engineering.
Engines and Boilers

FIRM No. **884.** Engineers.

We do not object to Colonial tariffs to a reasonable extent as in a new country this mode of raising revenue is almost essential. The great safeguard to us and to our Colonies would be an arrangement giving them a preference on goods to us and we asking for a preferential tariff in return. All raw materials used in manufacture should be imported free. What is required is that we should be in a position to retaliate and bargain with the several foreign countries in regard to the goods they take from us and the goods or produce we take from them. Our Colonies producing raw materials will be able to supply our wants and

1142 a preferential tariff with them is a great necessity and may be carried through to mutual advantage. The South African preferential tariff is 2½ per cent. on machinery such as we manufacture. We have heard of German invoices being sent with a preferential allowance of 2½ per cent. taken off to meet this small preferential tariff and we are of opinion that we should have far more than 2½ per cent. in Colonies like South Africa.

Mechanical Engineering. *Engines and Boilers—continued*

J. Fraser and Son, Ltd., Millwall Boiler Works, London, E.; Manufacturers of Steel Boilers, Storage Tanks, Steel Pipes.

Our experience of Colonial preference is good. We should certainly give the Colonies a preferential tariff of 10 per cent. and they should do the same with us on all goods. Care should be taken to see that foreign goods sent in a manufactured state to this country are not re-exported as British.

North British Locomotive Co., Ltd., 17, Victoria Street, London, S.W.; Manufacturers of Locomotives.

If the preferential tariff were such as to give us an effective preference in the Colonies, that is to compete with their own manufacturers as well as outsiders, it would help us a great deal. The Canadian preference has been of advantage. We got some orders last year and the year before from the Canadian Pacific Railway; all the orders before that for many years have been given to the United States, but the preference enabled us to secure the business.

Locomotives

1143 The Avonside Engine Co., Bristol; Locomotive Builders.

We note the necessity of preferential tariffs with our Colonies. The Canadian preferential tariff (33⅓ per cent. rebate) has enabled us to export locomotives into Canada against the United States; before the rebate we were unable to. Owing to there being no preference to British manufacturers in New South Wales we lost to Germany some 12 locomotives valued at £15,000 which (if we had made them) would have enabled us to spend £3,000 more wages than we did. This is one instance only.

In South Africa we have a 2½ per cent. preference—a mere nothing. All our Colonies should give us a preferential 33⅓ per cent. rebate whatever duty was imposed, as Canada does now. In India we have no advantage over Americans or Germans, and such a rebate would add 15 per cent. to our Indian business.

Tubes, &c.

Firm No. **10,562.** Manufacturers of Gasholders, Tubes, &c.

Any preference in India and South Africa to British-made goods must be in the direction of benefiting us.

Chisholms and Hendry Bros., Ltd., 28–34, Robertson Street, Glasgow; Tube Manufacturers.

The Canadian preferential tariff has had the effect of making us go in for the Canadian trade very much more strongly than hitherto. We believe it has been of great benefit to British manufacturers.

1144 Firm No. **1,423.** Tube Manufacturers.

We have made strenuous efforts and have sometimes succeeded in supplying tubes to the oil wells at Petrolia, Canada. But the present obstacles are almost insurmountable. The new tariff is more unfavourable for us than the old. Formerly the prohibitive duty of 23⅓ per cent. (35 per cent. less 33⅓ per cent. preference) was levied only on tubes not exceeding 2 inch diameter but now the size has been increased to 4 inches, probably because Canadian firms now make tubes of this diameter. This means we shall be shut out for all sizes up to 4 inches, which is the most important part of our trade. Besides competition from Canadian manufacturers the United States sends tubes from Pittsburg, which is nearer than the United Kingdom, and freight is consequently less.

Firm No. **948.** Manufacturers of Cast Iron Pipes for Water, Gas, and Sewerage Purposes.

In Canada the recent reduction in tariff in favour of this country enables us to compete against the United States. The same will doubtless hold good in South Africa and New Zealand.

Ratcliff and Ratcliff, Great Bridge, Staffordshire; Wrought Iron Tube Manufacturers.

The United States and Germany had completely cut us out of Colonial trade, but since the preference we have quite regained our trade in Canada and are shipping large quantities of tubes there.

1145 Firm No. **872.** Iron Masters, Pipe Makers and Colliery Proprietors.

If the Colonies, in consideration of advantages to be derived from association with the Mother Country, would give a preference of 10 per cent. in favour of Great Britain, as against other nations, we consider this would be only fair.

Motors and Cycles

Firm No. **629.** Motor and Mechanical Engineers.

We are strongly in favour of fair trading and if colonial goods of our manufacture come into this country free we should have the power of shipping our goods into their country on the same basis.

The Quadrant Cycle Co., Ltd., Sheepcote Street, Birmingham; Manufacturers of Motor and Ordinary Bicycles.

We believe there is a slight benefit in some of the Colonies but there has hardly been time to test the matter. In Canada it makes no difference as 35 per cent. less one-third still shuts us out completely.

J. Marston, Ltd., Paul Street, Wolverhampton; Cycle Manufacturers.

Preferential tariffs do not seem to help English cycles as far as Canada is concerned, but then we make a very high-priced cycle. They appear to be helpful in the other Colonies. The very close proximity of Canada to the United States in the case of bicycles more than compensates for the preferential tariff on English machines. 1146

James Rickard & Co., Brentford, London, W.; Cycle Manufacturers and Engineers.

We think our Colonies should allow our goods in free and that we should allow their goods in free, especially seeing that we have to protect them. Why should our Colonies put a duty on our goods when we are pleased to allow their goods in free? What Cobden did 50 years ago no doubt was a blessing to us. As manufacturers we practically commanded the markets of the world and only wanted cheap food, now we want work to buy the food.

The Raleigh Cycle Co., Ltd., Nottingham.

We lost our large Canadian business years ago through absence of preference and the proximity and cheap freights from the United States. When Canada raised her tariff United States cycle firms started in Canada. The preference now given to English goods has come too late for us. We have not yet had time to feel the effect of preferential tariff granted to British goods by New Zealand and South Africa, especially in view of the bad state of trade for the last 12 months in South Africa. The most important thing for the cycle trade would be if our Colonies taxed their imports generally by the piece or weight as do most Continental countries instead of ad valorem duties which favour cheap foreign imitations of British products and encourage fraudulent invoices. We are strongly in favour of admitting Colonial products 1147 free in return for preferential treatment of British goods on the above system but not ad valorem. Some time since a large number of American cycles was imported into Bombay at 50s. each. Even rubbish could not be built at that price.

Firm No. 581. Patent Tyre Manufacturers.

Vast quantities of motor cars and accessories are sent to the Colonies from foreign countries but as no preference exists for British goods the competition is equal, the tariff being the same to all. Any reduction or abolition in favour of British goods would secure the Colonial trade undoubtedly.

Hydraulic Engineering

J. Evans and Sons, Wolverhampton; Hydraulic Engineers.

In Australasia and South Africa we have received many more orders but not at enhanced prices. We do not find the Colonies give us any preference even on the same terms, and we have even been refused orders for goods equal or better at prices more favourable to the buyer.

Glenfield & Kennedy, Ltd., Kilmarnock; Hydraulic and Sanitary Engineers.

Colonial preferential tariffs are unquestionably a benefit to British trade. There are shoddy manufacturers in this country but our first-class manufacturers turn out more durable and substantial work than even the United States' makers. The United States' first-class makers turn out a well-finished article and more attention is paid to the interchangeableness than many of our makers practise, though in this they 1148 are improving. The United States' irons are soft and have not the durability which our irons have and are more easily machined than ours. Their machines are however much lighter than ours. As a rule German tools are inferior to United States' tools. Though our Colonists prefer our machinery they may be tempted by the lower prices of our competitors. We quite approve of the colonial preferential tariffs and would like to see a closer give and take arrangement between the Mother Country and her Colonies; but these will make dumping more difficult.

Miscellaneous

Blackstone & Co., Ltd., Rutland Engine Works, Stamford.

Trade has rapidly increased since the New Zealand duty on oil engines from England was abolished and our agents state that competition of inferior American and German engines is much lessened as purchasers can now obtain a good English-made engine at a moderate price.

The Allen Co., 39, Victoria Street, Westminster, S.W.; Acetylene Gas Plants and Accessories Manufacturers.

Owing to the preferential treatment already accorded in South Africa our trade with that country is rapidly increasing. If the same preferential treatment were obtained from other Colonies we are convinced the same result would follow as experienced in South Africa.

1149

J. M. Henderson & Co., King Street Engineering Works, Aberdeen; Engineers.

We get a preference in the Colonies and our colonial business is growing satisfactorily. We have not sufficient information to say what proportion of the orders we lose go to foreign firms.

J. Wilde, Finsbury Pavement House, London, E.C.; Engineer, &c.

South African preferential tariffs have greatly benefited British manufacturers and this will be increasingly felt. In North-West Canada the preference together with favourable freight rates has been an effectual help in meeting United States competition, close proximity notwithstanding. This makes for the development of this market in favour of this country.

Firm No. 843. Manufacturers of Cast Iron Pipes.

Australian markets seem gradually closing against us. Canada has been partially recovered for British trade by the preference. We sent goods to Canada last year for the first time for five or six years. But the new Canadian tariff will interfere with our business to a great extent. The new tariff is 25s. which with freight added amounts to 37s., almost as much as the cost of manufacture. It prevents us competing with the Canadian manufacture, but we may still obtain some of the work which would otherwise go to the United States.

Colonial Preferential Tariffs

Mechanical Engineering.
Accessories

1150 H. Miller & Co., Ltd., Miller Street, Birmingham ; Engineers and Makers of Cycle Accessories, &c.

We are receiving considerably more inquiries from Canada than hitherto. This might be accounted for either by the expansion of trade or by the new tariff. The 5 per cent. preference on British goods exported to South Africa is insufficient as the American and German firms get better rates from their steamship companies which more than counterbalance the 5 per cent. preference.

Firm No. **442.** Iron Founders, Machinists, &c.

Colonial preference has had the effect of sending all orders to this country, the foreigners cannot compete.

Turner, Schon & Co., 101, Leadenhall Street, E.C. ; Merchants of Machinery, Accessories, &c.

We have no experience but if we can have a preference so much the better.

The United Asbestos Co., Ltd., Dock House, Billiter Street, London, E.C. ; Manufacturers of Asbestos Goods.

There has not been sufficient time or opportunity to test this matter but there has been a greater
1151 disposition on the part of consumers in Canada to buy from us since the preferential tariff came into force.

Firm No. **1,110.** Manufacturers of Steam Packings, &c.

One of our Australian agents informs us that in view of the control obtained over many of the best West Australian mines by a firm composed mainly of American engineers, the risk of stocking new articles is too great until we can see better times for us in the Colonies. The firm in question is introducing American machinery and stores which makes it difficult to place British goods there. We could do a good deal more with the Colonies if they would give us a tariff preference over our foreign competitors. We do not think there are any makers of our class of goods in the Colonies and therefore any preference they give us over the foreigner is bound to be to our advantage.

S. Smith and Sons, Basford Brass Works, Nottingham; Brass Founders and Steam Gauge Manufacturers.

Where a preference now exists in two or three of our Colonies our firm has felt the favourable results especially in South Africa and New Zealand. If Australia gave us a preference of 10 per cent. it would give such an impetus to our trade that it would give employment to many skilled workmen who are now asking relief or shelter in the workhouse. If a 2s. duty is placed on foreign corn it should be on the distinct understanding that a preference be given to all British manufactured goods exported to the Colonies.

Industrial Engineering.
Machine Tools

1152 C. Taylor, Bartholmew Street, Birmingham ; Engineers and Lathe and Machine-Tool Makers.

I have had a few orders from Canada since the preferential tariff and expect to have more. I never had an order from Canada before. A slightly improved preferential tariff would enable me to increase this trade in certain classes of goods.

Standard Tool Co., Mearclough Works, Sowerby Bridge ; Tool Manufacturers.

The great difficulty in Australia and South Africa lies in want of unanimity on the subject of tariffs, each colony widely differing on the question. All raw material from the Colonies should be slightly taxed a greater tax being levied on foreign raw material, the preference being given to our Colonies. A preference also should be given to those countries who reciprocate to us in the way of duties.

Firm No. **907.** Manufacturers of Engineers' and Machinists' Tools.

Our experience is that foreign countries send goods into our Colonies at or below cost price ; a preferential tariff would help us in this matter. Benefit has already arisen in Canada.

Firm No. **1,590.** Engineer and Machine Tool Manufacturer.

1153 Colonial preferential tariffs are of great and increasing importance.

William Marples and Sons, Limited, Hibernia Works, Sheffield ; Tool Manufacturers.

A step in the right direction has been taken by Canada but it is at present insufficient to affect appreciably the export of British tools to Canada. Canadian workmen have a liking for American-made tools, and the fact that supplies can be obtained much quicker from the United States than from Great Britain is also a factor to be reckoned with by Canadian shippers. A much heavier rebate than is at present allowed is necessary before the Canadian demand for British tools will be appreciably augmented.

Smith and Coventry, Ltd., Gresley Works, Salford, Manchester ; Manufacturers of Lathes, Drilling and Tapping Machines, &c.

We meet foreign competition in the Colonies just as at home, but the preference given in Canada is enabling us now to get in there.

Firm No. **10,066.** Machine Tool, Railway Wheel and Axle, &c., Merchants.

In South Africa preferential tariffs have most undoubtedly benefited British manufactures, and this will be increasingly felt.

Agricultural Implements

1154 Harrison, McGregor & Co., Ltd., Leigh, Lancashire; Engineers, Ironfounders.

The South African preference is not sufficient. Our agents report that with a slightly increased preference more trade could be done by British makers. The New Zealand preference is expected to give good results.

Firm No. **C 1,874.** Agricultural Engineers.

With reference to competition in South Africa in certain lines of spades and shovels the preferential tariff has assisted us aided by the preference shown by Colonials for English made goods.

Martin's Cultivator Co. (The Harrison Patents Co., Ltd.), Stamford; Manufacturers of Agricultural Machinery.

Agricultural implements and machinery would be a good range of articles upon which reciprocal arrangements would operate beneficially between this country and Canada, but preference cannot benefit our manufacturers until our patent laws are amended.

1155 Ruston, Proctor & Co., Ltd., Sheaf Iron Works, Lincoln; Engineers.

Canadian duties are as good as prohibitive to the import of British engines into Canada. Many engines and thrashers are already manufactured there, but a vast amount is imported from the United States, the facility of crossing the border by railway being very great. Unless the Canadian duty is abolished on English machinery there will be little or no prospect of the Mother Country benefiting.

Firm No. **1,503.** Manufacturers of Agricultural Implements, &c.

The Colonial preferential tariffs are framed so as to make the advantage to this country comparatively trifling. For instance Canada, in which we are chiefly interested, has generally speaking no tariff on manufactured goods of the sort we are interested in when they are not produced in Canada, and therefore no preference in favour of British goods; and when the goods are manufactured in Canada we find the preference is quite ineffective, as the tariff is put so high as (even with the preference) to prevent such goods being imported at all.

Firm No. **845.** General and Agricultural Engineers.

Our export trade has never had a chance against the prohibitive duty in Canada and the United States. The preferential rebate given by Canada as far as our goods are concerned would appear somewhat sarcastic.

Mining Machinery

1156 Firm No. **1,593.** Engineers.

The 25 per cent. duty on mining machinery going into Queensland has prevented our getting orders there when we have tendered; and a similar remark applies to other Colonies which impose any similar duty.

C. E. Hall, 58, Fosters Buildings, Sheffield; Manufacturing Mining Engineer.

I have felt no benefit yet but the introduction of some system of preferential tariff will work favourably for the British manufacturer and also for the Colonies who in return for a concession to them will receive goods and machinery from us. At present the United States and Germany are taking our trade in New Zealand, Australia, the Cape and South Africa. The Colonies require nursing and a distinctly lower tariff should be imposed on British-made goods consistent with their own fiscal requirements. We should purchase all we can from the Colonies, they should give preference to our manufactures and they should be asked to discriminate between British and foreign machinery to our advantage. Some adjustment in carrying-rates by the railway and oversea-carrying companies might be effected. For instance a shipper loads here for the Continent at a rate to cover cost. He wants a return cargo, and what hinders him from carrying heavy goods at a much lower return rate? If we cannot control the shipper we can recover by means of an import duty some advantage to the national exchequer for this advantage taken by the foreign shipper.

Textile Machinery

1157 James Greaves & Co., 13, Ridgefield, Manchester; Engineers.

The only way to exclude the cheap Belgian, German and American iron and steel manufactures and other goods would be to have a preferential duty between India and England, say 5 per cent. in favour of England and her Colonies.

Firm No. **C 6,154.** Textile Engineers, &c.

We have had more inquiries and orders from Canada since the duty on machinery was reduced, but we have not derived so much benefit from the new tariff as we anticipated. Our chief competitors there, viz., the United States machine makers, now pay only the same rate of duty that we do—10 per cent. *ad valorem.*

Geo. Thomas & Co., 60, Deansgate, Manchester; Engineers and Exporters.

We don't export to the Colonies to any extent worth mentioning. Preferential tariffs would undoubtedly give an impetus to exporters.

1158 **Colonial Preferential Tariffs**

W. E. COOK, TURNAGAIN LANE, LONDON, E.C.; Printers' Furnisher.

So far as the Colonies are concerned I think not less than a 20 per cent. preference would resuscitate my trade.

Industrial Engineering. *Printing and Paper Machinery*

FIRM No. **828.** Paper Machine Wire Makers.

The preferential tariff granted to the United Kingdom by Canada has strengthened our position in that Colony and has put us in a better position to compete with Germany and the United States.

FIRM No. **1,455**. Manufacturers of Machine Knives, &c.

Our most important product is admitted free to Canada, and with regard to other products similar goods are made in Canada and although a rebate of one-third is allowed, the remaining tariff of 20 per cent. makes competition with Canadian makers impossible and the preference is therefore useless.

Laundry Machinery

J. AND A. MCFARLANE, LTD., SPRING BANK STREET, GLASGOW; Manufacturers of Laundry Machines, &c.

So far as foreign countries are concerned with the exception of South America we are completely shut
out by heavy tariffs. On the other hand our trade with the Colonies has improved during the last two years
1159 partly we believe by the preferential arrangement in our favour granted by some of them. Our principal
colonial trade is done with South Africa and it has increased in a general way. In a certain sense a preferential is of more advantage to us than an open free trade basis. On the latter we would be no better than the foreigner but on the former we are better off. Canada manufactures a considerable number of articles of a similar class to our own, and therefore we do very little business there. To those firms doing a trade there the preference gives an advantage over other countries.

FIRM No. **359.** Laundry Machinery Manufacturers.

Existing tariffs have not been sufficient to prevent unfair competition.

Miscellaneous

W. AND T. AVERY, LTD., SOHO FOUNDRY, BIRMINGHAM; Weighing Machinists.

The preferential tariff allowed by the Canadian Government has greatly assisted us in our business in certain classes of machines in that country, and has in fact been the means of our securing a large Government order last year.

W. JOHNSON AND SONS, LEEDS, LTD., ARMLEY, LEEDS; Engineers.

1160 We do not appear to have received any benefit so far but we have strong faith that we shall eventually. First of all we shall have to again introduce our manufactures to such Colonies. Canada for instance has bought entirely from the United States, but we are now doing business with Canada in coal-briquette making machinery, and we are expecting an order daily for brick and tile making machinery which we should not have received if it had not been for the preferential tariff.

FIRM No. **196.** Manufacturers of Safes, &c.

Canada uses a good many safes from the United States, the orders for which might come here if we were given preference. We hear also that the export of German safes to South Africa is increasing.

BROWN AND WARD, BRANSTON STREET, BIRMINGHAM; Engineers.

Our trade is generally through merchants and we do not at present do much trade in Canada, but preference must be good for British manufacturers and we believe it will benefit us. We have several letters to hand suggesting that the 33⅓ per cent. preference will enable us to compete with the Americans in the Canadian market especially in jewellers' machine tools.

1161 JAMES OATES, 33, TRINITY STREET, HUDDERSFIELD, YORKS; Manufacturer of Wall-paper Trimming Machines, &c.

We have obtained a market in Canada for our machines whilst the Americans' article is not yet in the field there, in spite of their frequent efforts. We are not aware of any other reason for this, save the preferential tariff.

P. ROGERS & CO., 48, GREEN STREET, BIRMINGHAM; Scale and Weighing Machine Manufacturer.

Preferential tariffs are without doubt benefit to our trade.

FIRM No. **C 7,695.** Manufacturer of Iron Tubes.

America and Germany had completely cut us out of Colonial trade, but since the preference Canadian trade has shown some improvement. 1905 shows an advance of 28 per cent. over 1904 and 1906 of 17½ per cent. over 1905. Our trade is the only one suffering from over-production in the United States and for this reason the last few years, in spite of the preference, we have had to fight hard in Canada. This over-production has now somewhat abated and we hope this year may see a great advance in trade with Canada.

(K) PATENT AND REGISTRATION LAWS 1162

Patent and Registration Laws

QUESTION 10 (FORM I.): *Do you suffer any disadvantages from the operations of the Patent Laws or Registration Laws in other countries? If so, please state particulars.*

Besides the replies printed below 195 firms state that they have no knowledge of, or have suffered no disadvantage (or very little) from the operations of patent and registration laws in other countries. 13 firms make general complaints against foreign patent laws, high fees, difficulties in obtaining patent rights, &c.; 18 firms complain as to the "compulsory working clause" abroad, and 16 firms point out the defective working of the British patent law.

Structural Engineering

ISCA FOUNDRY CO., NEWPORT, MON.; Constructive Engineers, &c.

Other countries can obtain patents here without manufacturing same in this country but we cannot obtain valid patents in other countries unless we manufacture same there within a prescribed date. Consequently foreign patents obtained here can prevent all manufacture in this country and thus ensure the trade being kept in their own countries and the patented articles imported here, thus establishing for themselves a protected market in this country to the disadvantage of home labour and manufacturers.

R. TRAILL & CO., VULCAN FOUNDRY, 178, BONNINGTON ROAD, LEITH; Manufacturers of Steel Beams and Girders and Cast Iron Columns. 1163

We suffer from the operations of the patent laws or registration laws in other countries. A patent in other countries is what it professes to be—a patent—the Government undertaking to defend any assault that may be made upon it; while in this country, where every man has to defend himself, it is only the wealthy who need trouble themselves to originate or invent anything. This state of things alone has a very great deal to do with the success in trade which the United States shows as compared with this country in the last two or three decades. There is a stimulus given to trade in the United States which is entirely lacking in this country. An ordinary labourer there may get the full advantage of any inventive power he has.

JOSEPH RICHMOND & CO., LTD., 30, KIRBY STREET, HATTON GARDEN, LONDON, E.C.; Engineers.

The chief disadvantage is the stipulation in some countries that the patent must be manufactured in that country in a stipulated time. Another disadvantage is the exorbitant rate charged by some countries. The patent laws in South Africa in our opinion should be revised. To thoroughly patent an invention in South Africa it is necessary to take out papers in Transvaal, Natal, Cape Colony, Rhodesia, &c., costing a considerable amount of money each.

FIRM NO. **1,013.** Manufacturers of Destructors, &c.

1164 In Holland there is no patent law and a strong tendency to pirate English invention. This is a serious difficulty as one has to avoid sending details with offers. The working clauses in the countries undermentioned are a serious hardship to all but patentees of small and cheap articles. These clauses provide that a patent becomes invalid unless worked at certain intervals. In most cases sending in detailed tenders is not accepted as evidence of working and expensive models have to be made and deposited with the Governments. These matters are done through patent agents, the expense being from £10 to £20 each time. In Russia a certificate of the Board of Trade inspector is needed that the actual apparatus has been seen working. In most cases there is no guarantee that the formal working will stand good in case of proceedings, the onus of proof being on the patentee. "Working" is required in France, Belgium, Germany, Italy, Switzerland, Russia, Austria-Hungary, Canada. In Canada, under a new law, a patentee may agree to "a compulsory license clause" in lieu of working. This "working clause" is a form of protection, its object being to ensure employment by the patentee of local labour in carrying his invention into effect.

Electrical Engineering

FIRM NO. **304.** Engineers.

We suffer from the fact that foreign countries require actual manufacture in the country within some short period (one or two years) of the time of the application of the patent, which is not always possible to arrange for. In fact those whose interest lies that way naturally take every means of preventing this.

FIRM NO. **1,453.** Engineers. 1165

The patent laws of most foreign countries (except United States) though much more favourable than before the International Patents Convention towards patentees of different nationalities are still in most cases very unfavourable to the British subject. In many countries the law demands practical or commercial working of the patent within a short time, otherwise the patent becomes invalid. In the case of the majority of important and useful patents, owing to the time required for development and the great cost of such working and also for commercial reasons, the compliance with the conditions of working required by the law becomes practically impossible. The English patent law on the other hand imposes practically no similar or onerous conditions on foreign patentees. A unique case of adverse patent tariff legislation exists in the Canadian patent laws. A British patentee is unable to import his patented article into Canada without invalidating his patent, provided his patent is more than two years old.

FIRM NO. **1,299.** Manufacturers of Electric Cables.

This country is placed at great disadvantage because our patent laws allow protection without insuring, as Continental patent law does, that inventions should be worked in this country and produce trade and labour for the working classes. Patents should be as in America and Germany and should not be granted until the proper Government official is satisfied that the invention is novel and useful.

Patent and Registration Laws

Marine Engineering

1166 William Beardmore & Co., Ltd., Govan Yard, Glasgow; Shipbuilders and Engineers.

We suffer disadvantages from the registration laws of this country not being made imperative upon all foreign vessels that enter our ports by which they obtain unfair trading advantages over British ships, and with the foreign bounties, subsidies and fiscal concessions they are able to trade at rates which would be ruinous to British shipowners. These, and the other items of unfair competition have an adverse influence on the shipbuilding industry of our country.

The Seamless Steel Boat Co., Ltd., Calder Vale Road, Wakefield; Boatbuilders.

In France and Germany it is necessary in order to keep the patent valid that such an article should be manufactured in the country each year. In cases where such articles require a large and expensive special plant, as in our case of pressing seamless steel boats of 20 ft. and upwards in length, it is almost an impossibility to meet the requirements of their laws and it should be possible for arrangements to be made so that the manufacture of a model in those countries in such cases should meet the requirements of the law.

Fisher & Co., St. Mirren's Engine Works, Paisley; Engineers.

Although not protected in any Continental country we ship a patent machine to six or seven different countries on the Continent and have done for years.

1167 W. D. Angier, Leadenhall House, 101, Leadenhall Street, London, E.C.; Agent for Engineering Firms, &c.

German, French and United States patent laws afford infinitely greater protection to inventors than British patent law. The stringency of the search made by the American Government office in particular gives almost absolute protection to an inventor when a patent is granted him. This is important from the point of view of company promoters who form companies to purchase British patent rights in so much as a foreign inventor may obtain an English patent for his invention and sell it on the British market before the patent in his own country is granted to him, though this is of course rare. It more often happens that a Continental inventor obtains patent rights on his invention in all countries except the United States, the most stringent of all, and the failure may seriously prejudice the value of the other rights he may hold or perhaps have sold.

Firm No. **1,317.** Marine Engineers.

Under the International Convention of patent laws the conditions are in many respects more favourable to the foreign patent raised in foreign countries than one raised in the British Empire, the difference being on account of the greater difficulty of a British subject in obtaining a patent in a foreign country. Besides there is the onerous condition of working in foreign countries such as Belgium, France, &c., which in many instances it is impossible to fulfil and the patent becomes invalid on account of the great expense and other reasons. In the British Empire there is practically no obligation on a foreigner to work his patent. There
1168 is one glaring case which we would mention, viz.:—Canada, a British Dependency, where a patentee is not allowed to import any article if the patent is more than two years old without invalidating his patent, a law somewhat similar to the old French law.

Firm No. **892.** Engineers.

We may state an example of how a foreign tariff makes the advantages of foreign patent laws inoperative. We received an invitation to tender for marine evaporating plant from a Philadelphia firm and forwarded drawings at their request. Our tender was not accepted but these drawings must have become available to an officer of the United States Navy who patented our apparatus in America notwithstanding that we already held a patent for it. The pirated apparatus was fitted in a number of vessels for the United States Navy. The fact that through the operation of a tariff we were getting practically no business from America made any action on our part not worth embarking upon. Had the market been open to us with the prospect of a possible amount of business we would certainly have considered the taking of action so as to secure our rights and reap the benefit of our patent there. The only course open to a British patentee with such a tariff as exists at present is to open works and manufacture in the country or dispose of his patent in the United States.

Firm No. **743.** Shipbuilders, Engineers, &c.

1169 We have suffered in the sense that our patents abroad have been evaded and infringed without our being able to obtain any legal satisfaction. This is particularly the case with our boilers in Germany which were copied and made use of to such an extent that a combination of interests was eventually agreed upon failing any legal satisfaction. In Russia we know that our patented specialities are being manufactured free of royalties.

Mechanical Engineering. *Engines and Boilers*

Robey & Co., Ltd., Globe Works, Lincoln; Engineers.

The chief disadvantages we suffer from the operation of the patent laws of other countries are owing to the condition that anything patented must be manufactured and worked in the country for which the patent is granted. This provision in most cases renders an ordinary commercial patent valueless.

Firm No. **413.** High Speed Engines, &c., Manufacturers.

Under existing patent laws in France or Germany patents in order to remain valid have actually to be worked in those countries within two years from the date on which they are granted while in England patents are granted to foreigners without any such restrictions. The necessity for getting the patents worked in a country prejudices patentees in their negotiations for granting royalty licences and prevents the sole manufacture being retained in this country.

1170 **Firm No. 689.** Engineer.

I consider that the patent law of the United States which grants a patent for fourteen years for a reasonable and definite sum is more just towards patentees than the laws of either this or the countries of the Continent. If modified in this direction trade in this country should in my opinion be increased.

Firm No. C 368.

With reference to Canadian patents ours was taken out scarcely a year ago and we believe no restrictions were made regarding manufacturing in the country. Since we paid the first fees we have been taxed already to put the patent on a licence footing though what this means it is very difficult to understand. Now it seems to be necessary before a year has passed to pay another charge of 4 guineas to enable us to do another year's business and at the end of that year we shall be in the same position as now. These are not ordinary patent fees but taxes on foreigners, among whom British are included. Canada is by far the worst country of any and it is time something were done to bring them up with a round turn.

Firm No. C 119.

1171 If one Imperial patent law to cover the British Empire were passed, or even if we had say four such acts, one for Britain and her Dependencies, one for Canada, one for Australia and one for South Africa the lot of the unhappy British and Colonial inventor or manufacturer would be very materially brightened and he would be inclined to venture into new commercial undertakings with much greater " vim " than he does at present knowing that he would not have to obtain over forty patents before he can be fully protected within the Empire. Such a procedure is antiquated and obsolete and no other country under the sun would think of hampering its industry as we do. America has one patent law wherever the Stars and Stripes float. France is in the same happy position, Russia although only now beginning to develop her industries has one patent law.

Firm No. 224. Engineers.

The patent laws in the United States and Germany are very unfair to us and prevent any invention of British origin receiving equal terms. Our patent laws are better protection to the foreigner.

Willoughby Bros., Ltd., Rendle Street, Plymouth; General Engineers, Boiler Makers and Iron Ship Builders.

Patent laws should be amended and intending patentees advised when making application for a patent if an existing patent covers their invention, instead of granting patents indiscriminately and letting the law courts settle disputes as to infringement.

1172 Ransome and Marshall, 67, Tithebarn Street, Liverpool; Engineers and Exporters.

Patent laws in England are very defective, patents so-called are accepted which are not valid in this country when tested in the law courts and are declined entirely abroad. Before a protection is granted means should be taken to find out whether the full patent can stand even if it does cost a little more.

W. R. Taylor, Medway Works, Rochester, Kent; Engineer, Ironfounder and Boilermaker.

I suffer from the operations of foreign patent laws particularly in Germany where I have had patents lapse through not being able to have the article manufactured and sold in the twelve months.

Stokers and Economisers

Firm No. 1,007. Makers of Economisers.

All patents everywhere cost too much money. We think that the plan in England of granting a patent and letting the courts subsequently decide is more disturbing than that which obtains in the United States. In England one is deterred from putting capital into a patent which if successful is nearly certain to be followed by a costly law suit.

Locomotives

Firm No. 1,050. Locomotive Engineers.

The English patent laws might be amended with advantage so as to encourage English workmen to develop their ingenuity and reap the reward by making it less expensive to protect an invention. 1173

Traction Engines

Firm No. 884. Engineers.

In most foreign countries it is obligatory for maintaining the validity of a patent that " working " in the country should be established within a short time of the grant of the patent and be continued without interruption. The fact that a machine is being used does not constitute a working of the patent within the meaning of the law which by " working " always means manufacture. In our patent laws foreigners are unrestricted in this regard. The obvious result of this is that unless a British patentee can carry on the manufacture of the patented article abroad he simply makes a present of his invention to the foreigner by introducing and patenting it in the countries referred to. Their idea is for us to manufacture in their countries. In many cases a short time only is allowed from the date of the British patent for making application for the foreign patent and the fees are out of all proportion to the possible benefits which may accrue to the British patentee. One advantage in the case of most foreign patents is that the Government to some extent undertake the responsibility of a patent being valid before granting it and thus the anomaly is prevented of practically any number of people taking out any number of patents for the same invention; but we cannot sustain a patent abroad unless we produce the article in the country. We may state that apart from this question we have found it increasingly difficult for Englishmen to obtain a patent in a foreign country.

1174 **Patent and Registration Laws**

Mechanical Engineering.
Gas Engineering

E. Ashworth, Collyhurst, Manchester; Manufacturer of Gas Engines, &c.

I find it impossible to patent and work an invention to advantage in such foreign countries where it is made a condition that the articles have to be made in the respective countries within a short limit of one, two, or three years. It is difficult to get foreigners to take up an invention and work it because they know that if an invention is not worked it will become void and they can then make without paying royalty. By purchasing an English specification full instructions are given them. On the other hand foreigners can patent inventions in England without being under the necessity of working them to keep them valid and so they prevent Englishmen from making in this country whilst they produce in their own country and export free to England. What is required is to obtain for us equal terms to those we offer to the foreigner; or make the English patent law similar to that of the foreigner.

Firm No. **501.** Gas and Water Engineers and Cast Iron Pipe Manufacturers.

We are at this disadvantage that one has to manufacture in most foreign countries the article patented there. With small articles this might not sometimes be difficult but with large pieces of machinery it is practically impossible. Foreigners on the other hand are allowed to come here and sell the articles made abroad but patented in this country without let or hindrance.

Firm No. **889.** Gas Meter Manufacturers.

1175 The patent laws in Germany are most unfair, it being almost impossible for a foreigner to obtain a satisfactory German patent and on one being obtained the manufacturer has often to work the patent in Germany for years at a loss or the patent becomes void. Our opinion is that all foreigners obtaining English patents should be compelled to manufacture all articles made under the patent in the United Kingdom.

Motors and Cycles

The Eagle Engineering and Motor Co., Ltd., Oakfield Road, Altrincham, Cheshire.

The Seldon patent has effectually put an end to any dream that the English or any other manufacturer might have had of selling cars to American purchasers. This is a master patent on gas engines of all descriptions, which includes of course petrol engines. It has been secured by the Automoblie Manufacturers' Association, a group of the leading motor car manufacturers in the United States, who by the operation of this patent can stop any petrol-driven motor car from entering the United States. Competition has thus been effectually quashed.

The Roots Oil Motor and Motor Car Ltd., Chicheley Street, York Road, London, S.E.; Motor Car Makers.

Invention which is one of the chief factors in the progress and advancement of the manufactures of
any country is fostered and encouraged in the United States, the charge made for a patent is small and the
1176 patent when granted is a protection for the invention. In Germany also invention is encouraged, the charges
for protection although greater are comparatively small and the patent when granted protects the invention.

"Relyante" Motor Works, Ltd., Blackhorse Lane, Walthamstow, London, E.; Motor Vehicle Manufacturers.

We suffer more disadvantages from the bad patent laws of our own conutry than from the patent laws of other countries.

F. Windham, M.I.C.E., 51a, Clarence Road, Hackney, London, N.E.; Maker of Motor Cars.

The English patent laws are very beneficial to the foreigner in this way—It is not compulsory to work here a patent taken out in this country as it is if we take one out say in Germany, hence patents are taken out to prevent anyone making the article here and to enable the same article to be made in the competing country (often subsidised by the local government) and dumped down here by virtue of the patent monopoly and lowness of price.

The Raleigh Cycle Co., Ltd., Nottingham.

We are obliged to work our patents within two or three years in foreign countries at very great expense
where it does not pay to do so, while the foreign patentee need not do so in England. His English patent
1177 prevents the article being made by anyone else here, while he makes abroad within the two or three years as
obligatory and he exports the goods to England and sells them here free of duty.

James Rickard & Co., Brentford, London, W.; Cycle Manufacturers and Engineers.

Before our English Patent Office accepts a would-be patentee's money they should make sure that the applied-for patent is new, as in Germany.

The Quadrant Cycle Co., Sheepcote Street, Birmingham; Manufacturers of Motor and Ordinary Bicycles.

An article patented in Canada cannot be sent by us into that Colony after the first 12 months, the importation being prohibited. This regulation makes a Canadian patent worthless and mischievous. In the United States considerable difficulty exists in getting a patent, quite irrelevant inventions being cited as anticipations. An utterly unpractical idea is allowed to stand as anticipating a practical English patent notwithstanding the United States patent law to the contrary. In Germany any really good British invention is shut out on the flimsiest pretext. We apply for German and United States patents never with the hope of getting them but to have their full reports on anticipations in all countries, this information not being obtainable from the British Patent Office.

JOHN MARSTON, LTD., PAUL STREET, WOLVERHAMPTON; Cycle Manufacturers. 1178

The Dunlop pneumatic tyres have been for many years sold cheaper on the Continent and in America in consequence of the English patents. Thus English bicycles cost considerably more than foreign ones in the matter of tyres. The patents will expire this year and the price of tyres has already been much reduced.

FIRM No. **581.** Patent Tyre Manufacturers.

A patent taken out here is published for all Germans to see and that same patent can be taken out in Germany by a German in preference to anyone not a German; if after a short time no German cares to take the patent out the authorities will grant the foreign applicant one, but they will always give their own people first chance over anyone of another nationality. Herein they show they know better how to look after their own interests than we do.

Hydraulic Engineering.
Heating, Ventilating, &c

ACME VENTILATING AND HEATING CO., 35, TARLETON STREET, LIVERPOOL.

Many Englishmen and others at home and in the Colonies don't hesitate to copy a distinctive name or title and make a good thing when they see it regardless of any business morality. Each for himself and anyone can take the hindmost, seems to rule unfortunately.

SUTCLIFFE VENTILATING AND DRYING CO., LTD., CATHEDRAL CORNER, FENNEL STREET, MANCHESTER. 1179

Every manufacturer suffers from the operation of our patent laws. They extort fees and give nothing in return. Our laws should be remodelled on American and German lines. The present patent law is so unjust to the inventor and so injurious to British trade that once the facts are known there should be no difficulty in getting the new Act passed. The present handicap against us and in favour of Americans is such that no business-like nation ought to endure. England gives the patentee protection for 14 years, United States gives protection for 17 years. England charges the patentee £19, United States charges £7. England gives no guarantee of validity. America guarantees validity. The two chief evils of the British system are renewal fees and invalidity. In America there are validity and no renewal fees. The result is that new inventions are eagerly sought for in America whilst in England they are looked upon with suspicion and distrust. There manufacturers and capitalists snap at an invention because it is new. Here they avoid and distrust it because it is new. This spells defeat for British commerce in contact with America. The remedy is for our patent office to give 21 years' protection with a guarantee of validity for £4. To do this it will be necessary to adopt the American system of testing for validity and to make an index of patents as perfect as that at Washington. There need be no waiting until this index is prepared as all patents can be proved at Washington for less than £2 each.

Accessories

SYDNEY SMITH AND SONS, BASFORD, NOTTINGHAM; Brass Founders, Steam Gauge Manufacturers, &c. 1180

By experience we have found it most difficult and costly to work successfully any of our patents in foreign countries on account of the restrictive conditions of foreign patent laws, compelling patented articles to be manufactured in the country for which the patent has been granted. Our own patent laws ought to be amended so as to apply to foreign patented articles when sold in this country the same conditions as the foreigner metes out to our inventers and patentees. We can sell our patented appliances in Holland because there are no patent laws there. The 1902 Act is an improvement on the old one, but it does not go far enough.

FIRM No. **1,110.** Manufacturers of Steam Packings, &c.

The new British patent law guards our interests very materially and has done away very largely with the injustice we were suffering under. In some countries a patent registered there has to be made there within a certain period and sometimes the difficulties encountered are so great that a patent is allowed to lapse rather than incur the expense and trouble of manufacturing. For two years we have been trying to get patents in America and Russia and they have not yet been granted although patents have been granted for the same article in Germany, France, Belgium, &c. The delay is causing us loss.

Industrial Engineering.
Machine Tools

J. TANGYE, PARK LANE EAST, TIPTON; Manufacturer of Machine Tools. 1181

In Germany the patent laws are deliberately framed to prevent other than Germans obtaining patents. My patent agent has always advised me not to take out German patents as it is no protection to an Englishman and merely draws attention of copyists. If a patent is apparently valuable the system in Germany is to waste time with frivolous anticipations and to delay the replies until a certain period has elapsed when the patent is refused on the ground of lapse of time. This is especially exercised against Englishmen owing to the freedom of our patent laws to foreigners. France and the States are better but in all of them it is necessary to manufacture the article in the country within a certain time, a stipulation we neglect.

With regard to German treachery I may mention Bessemer's steel patent which was purposely delayed by the Germans in the above way and was finally refused by means of wasting time as specified.

STANDARD TOOL CO., LTD., MEARCLOUGH, SOWERBY BRIDGE; Tool Manufacturers.

All kinds of absurd objections are made by Germany to applications for patents from England, objections that have no bearing on the matter at all. It is probably done with the intention of disgusting the applicant and pirating the invention. A foreign patentee should be compelled to manufacture the patented article in this country as they compel us to do in theirs.

FIRM No. **1,128.** Manufacturers of Forging Presses, &c.

We have always great difficulty in obtaining satisfactory patents in the United States. We have recently been trying for a patent for an improved valve gear for working forging presses. We have experienced no difficulty in obtaining this patent in England and Germany but in the United States old

1182 **Patent and Registration Laws**

Industrial Engineering *—continued*

patents that do not at all cover the same ground are brought up as a reason for not granting the patent we are applying for.

LUKE AND SPENCER, LTD., BROADHEATH, NEAR MANCHESTER; Manufacturers of Emery Wheels, &c.

We have been informed that our trade marks registered in Great Britain may be infringed in any of the Colonies unless a heavy registration fee is paid for each Colony. This is a considerable disadvantage, if true, and in the mutual interests of Great Britain and her Colonies the fees should be reduced to a minimum.

Agricultural Implements

JOHN BAKER, FALCON WORKS, WISBECH, CAMBRIDGESHIRE; Manufacturers of Corn and Seed Separating Machines.

Patent laws appear very little use to us. Our machines are copied by foreign makers in all parts of the world, and we find it very difficult to compete.

FOLLOWS AND BATE, LTD., MANCHESTER; Engineers.

We suffer disadvantages by the importation of German machines into this country for which patents have been granted in England months after the same patents have been granted to us, infringing our patents and underselling our goods. Even if we have a case there is the unsurmountable difficulty of knowing who
1183 to fire at. If patents are granted in England the goods should be made in England and employment found for our operatives.

MARTIN'S CULTIVATOR CO. (THE HARRISON PATENTS CO., LTD.), STAMFORD; Manufacturers of Agricultural Machinery.

Canadian firms hold several English patents on cultivators, binders, &c., which they manufacture in Canada and distribute through their London house in competition with us. We hold Canadian patents on cultivators, swath turners, and side delivery rakes with which we could do a good business in Canada but we are debarred by the manufacturing clause of the Canadian Patent Law, which makes the preference they are supposed to give the United Kingdom null and void. In the new Patents Bill which the President of the Board of Trade foreshadows, a clause should be inserted that would allow the compulsory manufacturing stipulation to be waived in the case of any State which agreed to waive its compulsory clause in our favour.

FIRM NO. **1,011.** Agricultural Engineers, &c.

We suffer from the short time allowed between taking out a patent in England and completing it in a foreign country, also from being compelled in some countries to make the article patented within those countries. On the other hand we are of opinion that foreign countries are distinctly in advance of Great Britain in declining to seal a patent until the originality of the invention has been verified by the Government
1184 officials.

FIRM NO. **845.** Agricultural Engineers, &c.

It is sometimes very difficult to arrange with licensees to work patents on equitable terms. This fact, coupled with the importation laws, prevents an inventor realising the value of his invention, the market being shut against him owing to his patent being invalidated by his importing the patented goods. The "working conditions" attached to many continental and colonial patents are very onerous as a patentee has either to pay heavy fees for extensions of time for working or himself arrange for manufacture of the patented article at great cost pending such time as he may be able to make suitable arrangements with licensees.

R. SIMON, PHŒNIX WORKS, VERNON ROAD, BASFORD, NOTTINGHAM; Manufacturer of Grain Weighing Machines.

The Canadian patent law requires articles patented there to be manufactured in that country within a year. (The Canadian Government should abolish this condition.) This is difficult to arrange and I have recently lost a patent I had in Canada through this law. Several countries on the Continent make the same stipulation but they being nearer home it is easier to comply. It is also easy to evade this stipulation in France, Belgium and Austria and it is not made in Germany.

1185

C. E. HALL, 58, FOSTERS BUILDINGS, 22, HIGH STREET, SHEFFIELD; Manufacturing Mining Engineer.

I consider the charges reasonable except in a few cases. We cannot touch their laws; they are made to protect themselves and not us. We should prefer making the patented inventions here and sending to them from our patterns but this we cannot do. We must set them to work within a certain time abroad and have them produced there. I have never suceeded in selling a single invention abroad to manufacture. There are many difficulties in the way.

Textile Machinery

HETHERINGTON AND ANDERSON, NOTTINGHAM; Machinery Agents.

We are importers of foreign (principally German) machinery for the manufacture of textile fabrics, but more particularly machines for seaming stockings and underwear and for linking and binding off textile goods made by the hosiery manufacturers of the United Kingdom. The whole of such machines are specialities and are all built and patented on the Continent and abroad, the patents being applicable to the machines to be used in this country. As such machinery affords the greatest assistance to the hosiery manufacturers of this country in competing with foreign manufacturers it would be a mistake to tax it and similar labour-saving machinery as it would enhance the price to the customers and thus hamper them in their endeavours to compete with their foreign rivals.

Firm No. **2,807.** Machinery Maker. 1186

We suffer very serious loss owing to patent machines having to be manufactured in the foreign country. All we have constructed out of this country have had to be sold for less than cost price so we have abandoned our patents in those countries.

Firm No. **1,067.** General Engineers.

There is a law in Germany which stipulates that anything which is patented in that country must be manufactured in the country within two years of the filing of the patent, otherwise the article can be manufactured by anyone in that country. This places us at a disadvantage but it might be introduced into our patent laws with advantage.

Geo. Thomas & Co., 60, Deansgate, Manchester; Engineers and Exporters.

In nearly all countries where machines are patented they must be constructed there and English patentees of such machines usually arrange to have their patents exploited abroad. Where a special machine is not patented abroad, especially in Germany, a firm may sell one machine, but it is ten to one no more will be sold as the machine will be copied and made there. Patent laws (especially in Germany, France, Austria, &c.) often debar English engineers from taking out and working patents abroad. If our patent laws were as stringent we should be better off. Every patent taken out in Great Britain should be made and exploited in Great Britain. Had this been the case in the chemical and aniline trades thousands 1187 of British workmen would have been employed, instead of the same number of foreigners, making this stuff for the British market.

Firm No. **1,221.** Manufacturer of Metal Goods for Machinists, &c.

Patent laws in Germany are so framed that a patent there lapses unless worked on their soil within a short period of patent date. Foreigners patent goods in Britain and manufacture in their own country. A benefit would accrue if our law were similar. English patent laws are more against us than present trading conditions.

Firm No. **150.** Knitting Machine Manufacturer.

The German patent laws are a real protection to her machine makers. It is useless for us to take out a German patent because unless we manufacture the patent in Germany within three years it becomes void. Much could be done to help our trade at home by similar protective patent laws so that when the Americans and Germans have a good thing they must come here and make it or let us do so ourselves. It is to protect their German patents that a large firm of sewing machine makers in this country have recently built a factory in Germany.

Lowe and Johnson, Poplar Street, Nottingham; Pleating, &c., Machine Builders. 1188

I suffer through the disadvantages of English patent laws as well as foreign. I think when the Government have taken your fees, and the patents have stood the test of months of inspection between the application and the granting, the Government should stand the expense of contesting the validity in case of infringement. I don't believe in the annual payments which are exacted from you by some foreign countries.

Printing and Paper Machinery

Linotype and Machinery, Ltd., 188, Fleet Street, E.C.; Engineers.

An English manufacturer who owns patents abroad (unless he works his patents abroad by competing or manufacturing) faces the almost certain risk in the event of his patent rights being challenged of losing his continental patents, in addition to which he has to pay heavy customs duties in the countries to which he exports; whereas the German or American who owns patents here can ship to this country, runs no risk of losing his patents and has no customs duty to pay. Therefore the English manufacturer suffers double disadvantage and is heavily handicapped as compared with foreign manufacturers. Our chairman, Sir Joseph Lawrence, strove, in the new Patent Act, to get this inequality rectified but with very small success. The Act referred to — the Patent Law Amendment Act of 1902 — met the wishes of the Chambers of Commerce only to the extent of giving manufacturers in this country the power to demand compulsory licenses on terms to be fixed in cases where patents held in this country by foreigners were not worked here. The President of the Board of Trade, Mr. Gerald Balfour, was opposed to going so far as to assimilate our patent laws to those of Germany and other countries by which manufacturers are compelled to carry on the manufacturing 1189 processes under their patents in the countries where those patents are held as a condition of keeping their patents alive. He was warned both on the second and third reading of the Bill that compulsory licenses were only a half measure, and that they would be futile, which has been proved to be the case since less than half-a-dozen applications have been made under that Act for compulsory licences out of considerably over 150,000 patents granted. The Associated Chambers of Commerce at their annual meeting in March last (1905) unanimously passed a resolution in favour of compulsory working and demanding from the Government the introduction of a further measure of patent law reform. The real opposition to the granting of compulsory working emanated from a certain section of patent agents and patent counsel who are interested in the taking out of patents in this country by foreign firms and companies, from which they derive a lucrative income, and naturally any disadvantages imposed upon foreign manufacturers seeking patents in this country would not be to the interests of a number of professional persons here.

The Fovgrove Machinery Co., Ltd., Admiral Street, Dewsbury Road, Leeds; Patent Wrapping and Folding Machinery Manufacturers.

In France and Germany the patent laws are framed so that the articles must be manufactured in the countries in which the patents are granted. It is possible however to procure the necessary "certificate of

Patent and Registration Laws

Industrial Engineering. *Printing and Paper Machinery —continued*

1190 working" of the patent on a portion of the machine, and we have so far not found it necessary to construct the entire machine abroad.

James Bertram and Son, Ltd., Leith Walk Foundry, Edinburgh; Manufacturers of Machinery for Paper Mills, &c.

We find it very difficult to get our patents made good in Germany and in the United States, the only two countries we practically attempt to take out patents in. We are sometimes inclined to think that Germany puts needless difficulties in the way of foreigners getting through their patents.

Bertram's, Ltd., St. Katherine's Works, Sciennes, Edinburgh; Makers of Paper Mill Machinery, Gearing and Steam Engines, &c.

We do not suffer any disadvantage from the patent laws in other countries but it would be of immense importance to patentees if one set of fees covered the patents in the Colonies as well as in the Mother Country. The large cost of patent fees to cover a patent in various countries makes it impossible to protect the most of them as ought to be done.

Laundry Machinery

J. and A. McFarlane, Ltd., Spring Bank Street, Glasgow; Manufacturers of Laundry Machines, &c.

The new Patent Act has improved matters so far as the validity of a patent is concerned, and perhaps
1191 if the price were lowered to the American standard not much more could be done except in regard to foreign patents in this country. If we take out a patent in Germany we can only manufacture the goods here and send them into that country for three years; after that time the goods must be manufactured in Germany. Should we not retaliate and put them or any other country if necessary on the same footing? The main reason for this retaliatory movement is as follows:—Britain is not now owing to Free trade a good centre in which to start the manufacture of an important patented invention. If established in Britain we can only at best guarantee British trade, but if established in France or Germany that country having free entrance into Britain can guarantee its own trade and that of Britain as well. Thus it has two chances to our one, but if they required to have the goods made here after three years it would largely neutralise their present important advantage.

Beaumonts, Ltd., Pump Works, Brinksway, Stockport; Scouring and Bleaching Machines, &c., Manufacturers.

We suffer disadvantages from the operations of the patent laws in France and other countries insisting upon the working of patents. Our patents have fallen through on that account. The American patent law is not carried out justly as they refused to grant a patent on a perfect appliance whereas all before it were mere shams. Although they took our money they afterwards refused to grant the patent.

Thomas and Taylor, Ltd., 99, Foathill Road, London, N., and Works at Stockport; Engineers.

1192 We do not attempt to take out foreign patents having had our goods copied so largely.

Miscellaneous

Firm No. **505.** Mechanical Engineers.

It is difficult to obtain and maintain a patent in many foreign countries as compared with the facilities given to the foreigner who takes out patents in this country, which in many cases serve to protect his imports, whereas we are obliged to license makers in foreign countries or arrange to manufacture in the country. This means that when the foreigner's patent expires in England he still controls the market as no maker has acquired the experience; but when English patents in foreign countries expire the patentee's interest is practically at an end. We have to resort to inconvenient and troublesome methods to minimise this inequality as far as possible. The patent laws in our Colonies should also be made more uniform and all brought under the operation of the Patent Laws Convention.

Firm No. **4,629.** Leather Machinery Manufacturers.

We have found our patents copied and in one case used for about 12 years. When we were charged with infringement we asked for particulars of their patents, which they sent, when we found that theirs was worked by our 12 years' old patent. Needless to say we pointed this out by sending our patent and asking their reply, but this did not come until we wrote at intervals and pressed when they said they did not see any infringement. We are watching another case now having accidentally found it out. Wherever
1193 we have to work a patent in a given time foreigners should be subjected to the same treatment. We strongly think registration of designs of machines should be protected abroad as in England.

W. Johnson and Sons, Leeds, Ltd., Armley, Leeds; Engineers.

It is many years since we attempted to take out patents in foreign countries as we found at that time it was, in our trade, practically useless to do so as the machines were at once copied with some slight change.

Bramley Engineering Co., Bramley, Leeds; Engineers.

There is no security in a British patent. The whole onus of proof lies on the patentee. The Government charge high fees and give absolutely nothing in return.

Davidson & Co., Ltd., Sirocco Engineering Works, Belfast; Makers of Machinery for the Manufacture of Tea Leaf, &c.

The clauses relating to compulsory manufacture of patented articles in some countries is a serious handicap, notably in Canada where even the fact of importing a patented article after the second year of the patent will invalidate it. In Germany, Austria-Hungary, &c., it necessitates either a considerable expense and risk to start a manufacturing business before the actual value of the patent is established in these countries, or the sale in many cases at a nominal price of the patent rather than let its validity lapse. In the United States compulsory manufacture does not apply but the import tariff of 45 per cent. accomplishes practically the same result and compels manufacture in that country, but nevertheless we consider the American patent law is more favourable to patentees than that of Canada, Germany, &c., as an American patent remains valid for its full term irrespective of whether the article be made in that country or not, and thereby gives a better opportunity to a patentee to ascertain the value of or to exploit his patent without undue haste or risk.

W. and T. Avery, Ltd., Soho Foundry, Smethwick, Birmingham; Weighing Machinists.

In Canada and France a patented article must be made in the country. As regards the United States our complaint is rather against our own patent laws which permit Americans to secure patents in this country and manufacture the goods in their own. British labour and capital thus suffer and the goods can be dumped here if necessary.

American Wringer Co., Ltd., 56, Southwark Street, London, S.E.; Manufacturers of Domestic and Labour Saving Machinery.

The patent laws of this country inflict the greatest disadvantage inasmuch as no protection is given after fees have been paid. In most foreign countries a search of the records is made before issuing patents and generally speaking patents are only granted for new inventions. I know of one article in this country which has been patented over 30 times and a patent granted in each case.

G. Kent, 199 to 204a, High Holborn, London, W.C.; Manufacturer of Domestic Labour-Saving Machinery.

Foreign patent laws operate adversely to the English inventor in that the obligation to manufacture within a certain period in certain foreign countries in order to maintain the validity of the patent often becomes operative before there has been full time to bring the business side of the invention to a state sufficiently advanced to permit of its manufacture abroad. An extension of the time would be an advantage but better still the removal of the obligation which after all is only an advanced form of protection.

1198

SECTION V.—ADDITIONAL WRITTEN EVIDENCE

Additional Written Evidence

Additional evidence has been taken in order to bring the evidence up to date. This evidence is supplementary to the main body of evidence published in this volume (pars. 401—729) and to the replies to Forms of Inquiry (pars. 730—1195).

Structural Engineering

Much evidence on this branch of Engineering is published in the volume of the Report of the Tariff Commission on Iron and Steel. The following supplementary notes are made by Sir Thomas Wrightson, whose main evidence has appeared in the volume on Iron and Steel.

1199

WITNESS No. 320

SIR THOMAS WRIGHTSON, BART.

(Head, Wrightson & Co., Ltd., Teesdale Iron Works, Thornaby-on-Tees; Managing Director of the North Eastern Steel Co., Ltd., Middlesbrough; and Cramlington Colliery Co., Northumberland).

October, 1908.

Increased Imports

I am asked as to the increase in imports of girders, beams, joists and pillars (£467,000 in 1896 to £866,000 in 1906) and how far these imports come under the dumping definition. That is a matter of opinion, but it should not be overlooked that the largely-extended use of girders, beams, joists and pillars for building and other purposes during that period has been adding yearly to the quantity required, and that it is only within recent years that British makers have taken up this manufacture, the bulk of which was formerly made by German and Belgian makers.

1200

Falling off in 1907

Dumping

I have no doubt that the falling off in the imports for 1907, when they fell to £575,000, is to a great extent attributable to home activity in the exporting countries, and that British production has been stimulated to a large extent to meet the increased demand for this material. Since the period, say up to six months ending June, 1904, covered by my evidence on the iron and steel industry, the imports into this country have been reduced and the exports considerably increased. The policy also of the American and Continental makers during the present depression appears to have been one of restricting production rather than working full time and dumping the surplus make into this country at any price they could get irrespective of cost. At the same time they have been taking orders and quoting prices which have seriously affected our markets in this country, and in competing against them we have had to accept altogether unremunerative prices to secure orders.

I think it is very probable that whilst the prevailing depression in Germany, Belgium and the United States lasts there will be a considerable increase in the imports into, and a decrease in the exports from, this country.

Tendencies

1201

This question is put to me: " Mr. Stephen Jeans, the Secretary of the British Iron Trade Association, in his evidence before the Commission declared that ' British girder manufacturers have now come fully abreast of their Continental rivals, and they will be materially aided in their competition by the new system of standard specifications and sections ' (paragraph 1084 of Iron and Steel Report of the Tariff Commission). How far should you say that that anticipation has been realised ? Is this an explanation of any part of the recent decline in imports, and the considerable increase in exports, of girders, beams, joists, and pillars ? "

It would appear from the Board of Trade Returns that Mr. Jeans' anticipations have been to a considerable extent realised, as with the exception of the year 1906 there has been a considerable decline in the imports since 1903, and a large increase (more than double) in the exports since 1904, the first year that girders, beams, &c., were shown separately in the Returns. I do not know if any estimates of the output of girders, beams, joists, &c., by British makers are obtainable.

The tendency in the iron and steel trade generally appears to be towards greater competition from foreign makers in all our markets, both at home and abroad.

WITNESS No. 246 1202

MR. HUGO HIRST

(Managing Director, General Electric Co., Ltd., 71, Queen Victoria Street, London, E.C.).
December, 1908.

Electrical Engineering

Municipal Contracts

Less to British Labour

Since giving my evidence before the Tariff Commission there have been further interesting develop-
ments. The large municipal expenditure, which I have estimated at £300 millions in the last ten years,
is a matter to which I should like to briefly refer. Municipalities are now spending roughly about £30 millions
per annum, and of this sum about £1½ millions per annum is expended on electrical plant, machinery, fittings
and supplies. How much of this total has gone to foreign countries it is impossible to say, but I should
place the figure at not less than one half. The proportion paid out in wages for the manufacture of
these goods would be at least 50 per cent., equal to a sum of £350,000 per annum. Every one of the contracts
represented in the above sum, which we give to foreign firms or for the purchase of foreign goods, could
equally well have been filled by British manufacturers. These same municipalities almost without exception
are now at their wits' end to find work for masses of unemployed and here they have during the past year
been paying the wages of foreign workmen to an abnormal extent. I can speak with no authority as to the
proportion of expenditure of the balance of that £30 millions per annum that goes to foreign workmen, 1203
but as the same policy controls the placing of all their contracts there is no doubt that the total sum is a
prodigious one.

In London, Manchester, Glasgow, Hull, and other places contracts have recently been placed abroad for electrical productions when the difference in price between English and foreign tenders has been quite insignificant. Such a policy on the part of public bodies holding special franchises and other advantages, would not be tolerated for a moment by any modern country except our own. Even supposing British prices were always 10 per cent. above foreign prices, the placing of such orders abroad would be unwarrantable from an economic standpoint, for to save 2s. in the £ on the price at least 10s. in the £ is paid away to foreign workmen. At the same time even under prosperous conditions it would not be easy for some time to find employment for our congested population.

Continental Practice

What a different spirit is manifested in other countries! In Germany, for instance, in order to discover our business position in relation to that of foreign houses, my firm have occasionally endeavoured to quote for certain work, but have been refused even the forms of tender unless we could guarantee that the goods would be manufactured in the country in question.

I have before me the last issue of the Board of Trade Journal in which is a paragraph referring to
tenders invited for goods required for the Norwegian State Railways. A note is attached which reads as 1204
follows: "Apart from the usual Customs duties a preference of from 10 to 15 per cent. is given to Norwegian
manufacturers." In cases where it is not compulsory for foreign State Departments and public bodies to
purchase their goods locally it is in nearly every case obligatory that a preference of from 10 to 15 per cent.
is given to local manufacturers, and foreign firms, as a rule, cannot tender at all except through an agent
residing in the country.

Even in the newer countries a similar policy exists. In Australia, when franchises are granted to municipal bodies, and harbour or tramway authorities, a condition is usually attached to the effect that all goods purchased under those franchises must be of Australian manufacture and to purchase goods from any other country permission has to be specially obtained from the Government. The New South Wales Government have recently placed orders locally for rolling stock at prices from 10 to 15 per cent. above those at which they could have imported same.

Results of placing Contracts Abroad

The advantage of keeping orders at home does not stop at providing employment for our own people; there are other economic features which are still less understood by our municipal authorities than the one to which I have referred and yet equally important.

It is not generally appreciated, for instance, that every contract given abroad helps the foreign
manufacturer to cut us out in our own home market; it has a double effect, for while it increases the skill
and efficiency and financial stability of foreign industries, it weakens the British hold upon the British 1205
home trade. Again, in some cases, where the foreigner has done this municipal work at a somewhat
lower price than the British tenderers would have done, experience shows that on "repeats" and extensions
the prices have been higher than British prices, and municipalities have had to accept these higher
prices because of the difficulty involved in adapting British machinery to existing foreign plant.

Then the encouragement of foreign industries by British municipalities has done much to spread the impression that German work and German plant is superior to British—a sentiment which is a good-will of great value to the foreigner, not alone in the British market but also in Colonial markets.

Another feature—and this I regard as being of extreme importance—is the financial side of the question. By giving their contracts abroad, British municipalities strengthen the hands of foreign financial institutions in their policy of reserving their own work for their own home industries. German electrical undertakings are financed by, and remain in the most intimate association with the German banks, and whenever German financiers finance undertakings abroad it is stipulated that the plant and machinery for these undertakings shall be produced in Germany. In the United Kingdom there is no such association between the financier and the industrial, and no such stipulation occurs. While, therefore, there is considerable

1206 financing of foreign undertakings by British capital, nothing like the corresponding benefit accrues to British industry.

Experiences with British Municipalities

In contrast with the German method, let me quote a recent experience with a well-known London municipal body. My firm obtained certain electrical work under a tender which was £1 lower than the lowest German tender. The next day I was waited upon by an official of the Corporation, who sought to impose upon us the most exacting stipulations as to the wages to be paid and hours of labour to be worked; my place was to be whitewashed once or twice a year and so on. My reply was, "Had my offer been £1 higher instead of £1 lower the contract would have gone to the foreigner and you would not have bothered your heads for one minute about the conditions under which the goods were to be produced abroad. And you call that British fair play!"

My critics will say that our municipalities stipulate also that a fair rate of wages shall be paid to the workman manufacturing for their requirements, but what guarantee can they get that such wages clauses will be carried out by foreign firms? What supervision have they ever exercised?

This subject reminds me of the following stipulation which the Glasgow Corporation made with a German firm: "We the undersigned declare that we pay to all our employees more than the standard rate of wages in each branch of the trade—eightpence halfpenny being the rate for high skilled labour—
1207 and we are prepared to prove this by laying our wage list before any person appointed to confirm it." What can be the value of such a condition as this? It is not stipulated that the rate of wages paid shall be equal to the British rate, indeed the statement is so vague as to be positively of no value whatever. But the question is, how can such a clause benefit the British workman? Having found employment for foreign workpeople these municipalities go out of their way—albeit ineffectually—to provide that they shall be properly paid! This must be a great solace to the British working-man in view of the existing condition of industry in Great Britain.

A National Question

Many thinking men believe the time has come when municipalities who are given special franchises and other advantages should be called upon to benefit home industries so far as they reasonably can by giving contracts to home firms—of course within reasonable limits as to prices, &c., and as I have pointed out in my main evidence, the benefit to the community generally here is so far-reaching as to make this a highly beneficial and profitable course from the national point of view. Where is the economic advantage of saving £1,000 on a contract and spending £2,000 or £3,000 to keep our out-of-works from starvation?

Of course this question must be regarded in a national way. It is useless, for instance, for municipalities to take the line taken by one well-known borough in dealing with us not very long ago. They were willing to give us a contract for which we tendered £2 higher than did the lowest foreign firm but only on the condition that the money should be spent in their particular borough. I pointed out that our works
1208 were not in this London borough, but in the Midlands, but that the benefit would be to British employment. "Oh, well," was the reply, "unless you can benefit the workpeople in our parish we will not spend the extra £2."

Incandescent Lamps

Since my evidence was given the consumption of lamps in the United Kingdom has increased from 30 to 40 per cent. The present consumption of lamps is probably about 20 millions, of which about 4 millions are metallic filament. Of the remaining 17 millions about 10 millions are made in this country, the other 7 millions being imported. A great change has been brought about by the introduction of the metal filament lamp, and if you ask me to prophesy I should say that in three years there will be more metal than carbon filament lamps in use in this country. And if the patents hold good and we get a measure of Tariff Reform, there is every prospect that the requirements of metal filament lamps will be supplied by home industry. My own firm by an arrangement with the foreign patent holders, is just putting up a factory capable of turning out 10,000 of these lamps per day.

Electrical Fittings

I should say that the annual value of the British consumption of electrical fittings (electric lamp holders, switches, fuses, cut-outs and accessories), arc lamps, conduits, etc., is about £300,000 to £400,000, about half of which is now supplied from abroad. The proportion of foreign to British is increasing.

1209

WITNESS No. 247.

Mr. W. L. MADGEN

Electrical Engineering

(Managing Director, The Brush Electrical Engineering Co., Ltd., Victoria Works, Belvedere Road, London, S.E., and at Loughborough, Leicestershire; Manufacturers of Electrical Machinery).

State of the Industry

The depressed state of the electrical manufacturing industry is generally recognised and has, of late, been the subject of much discussion. The contributions of those who have taken part in this discussion are not directed towards assisting the manufacturer to evade the effect of merely passing trade troubles. On the contrary, it is readily and generally recognised that the causes of depression lie deep, and that a remedy must be sought for a malady which is chronic.

Alleged Causes

It is alleged by contending parties that the prolonged unremunerative condition of British electrical manufacturing is due to Free Trade, incompetent management, indifference to scientific progress, unsound

1210 finance, municipal trading, and apparently, even to decay of enterprise. There are not wanting those who never lose an opportunity of exalting the capabilities of the foreigner who thrives behind the double protection of the prohibitive duty and the kartell, and whose prosperity in these circumstances is made the occasion for denunciations of the British manufacturer for his failure to produce the same results, while engaged in cut-throat competition in a country with no similar tariff wall. If it were necessary, I believe it can be demonstrated that the British manufacturer, who has been the victim of so much popular injustice in this generation, has nothing to apologise for as regards enterprise and method when put in fair comparison with his foreign competitor.

Foreign Manufacturers in England

One of the most suitable channels of impartial inquiry, one would think, would be to ascertain the results of what may be termed the transplantation of industries. In the course of an investigation of this kind, I believe it would be found that when British enterprise and British capital have been employed in establishing industries in protected countries, the results have, in general, been successful: whereas the experiments of foreign manufacturers in erecting subsidiary factories in Great Britain have, on the contrary, demonstrated that the qualities which some critics attribute to them do not enable them to carry on business to better advantage than the native born, however brilliant may have been their achievements under the easier conditions abroad.

1211 The principal electrical manufacturing companies of the United States, of which I desire to speak in all good will and with ample recognition of the skill and enterprise with which they have availed themselves of their opportunities in their great protected market, sent over to England some of their ablest directors and most accomplished technicians, their most experienced departmental managers and their most resourceful salesmen. They founded factories embodying in their design and equipment the conclusions of their great and much admired United States' experience, and they provided a generous amount of working capital. And, after but a few years' trading, the results have shown that they have been unable to carry on business with adequate profit under the conditions of unparalleled difficulty which obtain in this country.

Unequal Conditions

What then are the special conditions which, so far, have made Great Britain an infertile field for electrical manufacturing? We are under no disability in regard to the supply of labour and materials.

The highest technical skill is always available, and in this department, British firms have engaged men of the most eminent scientific ability of various nationalities. Our administration, so far as I have been able to observe, is at least equal to that provided by our foreign competitors. Eliminate these factors, and it is obvious that for our explanation of the extraordinary contrast between our electrical manufacturing industry and that of other countries, we must examine those conditions which are peculiar to this country and unknown abroad. There are only two. The first is the succession of legislative blunders which have paralysed electrical enterprise in Great Britain. That is the first condition which is unparalleled abroad, namely, the employment of the power of the Imperial and Local Government authorities in blocking the commercial advancement of an industry. There has been Free Trade for every element of obstruction within, and Free Trade for every element of competition from without. 1212

The second unique condition is that while our foreign rivals have had preserved for them a great market in which they have always been certain of obtaining remunerative prices for a large output, we have not had a foot of territory to call our own. Wherever we have sought to do business, we have been attended by foreign competitors, subsidised in the sense that their standing charges in the shape of administration costs, rates and taxes and so forth, have been already covered by their home trade, so that they can afford to sell in England upon a moderate addition to the cost of material and labour, while the native manufacturer's price has to include all expenses of production. We are told, for our consolation, that this martyrdom of British employers of labour is of wonderful benefit to the consumer. The faith in the family-stocking is strangely persistent: it is not yet realised that we must work for our living: that we must produce before we can consume, and that if in the inevitable working out of this subsidised foreign competition, a home manufacturing trade is crippled, the consumer will find the import prices rising to a higher level.

Inter-urban Traction and Power

1213 In regard to the means that should be taken for the betterment of the electrical industry, apart from an adjustment of tariff that would compel the foreign competitor to include in his price an item equivalent, at least, to the taxation imposed upon the home manufacturer, there is much that might be said on behalf of a broader appreciation on the part of the legislature of the social and industrial advantage of more comprehensive schemes of electric traction and power supply. The natural conditions here are exceptionally suitable for taking advantage of electrical progress. Our narrow parochial policy has, however, put back the construction of probably some thousands of miles of light railways, and of large main power stations for supplying electrical energy on a wholesale scale. By granting local municipal monopolies, the Legislature has "picked the eyes out of the mine," to borrow an expression common among mining engineers, that is to say, there has been no statesmanlike provision for the orderly and systematic development of the country's opportunities of benefiting by the practical application of electrical science. Consequently throughout a country which in numerous districts has clusters of towns ideally situated for light railway connection, there are many inconvenient gaps in the track, and there are many sites exceedingly well adapted for industrial settlement lacking the attraction of cheap electric power.

Exports

I am asked as to export markets. Our best export markets, at present, are India, Australasia and South America. South Africa has become more and more the cockpit of international competition. The severity of American and German competition, as I have said, is largely due to the fact that their industries start with the enormous benefit of protected home markets. Their tariffs are practically prohibitive, and being secure in their own home fields, they are of course able to produce for export at a cost with which it is increasingly difficult to compete,

British Contracts Placed Abroad

1214 As an illustration of the competitive power of our foreign rivals, the following quotation is worth making from the "Electrical Times" of November 26th, 1908:—

"A superficial glance through a list of our electric light and power stations shows that, in dynamos and alternators alone, foreign makers are represented by a very handsome proportion. For instance, take some well-known cases that occur to one forthwith, in London and the provinces. We will consider the London United Trams, Newport Trams, Dublin Trams, Dublin Corporation, Central London Railway, Central Electric Supply Company, Ipswich, Coventry, Glasgow Trams, Charing Cross Company (Bow Station), Fulham Corporation, Kensington and Knightsbridge Company, Swansea Corporation, Sunderland Corporation, and Manchester (even including the two purely English stations). According to the 1908 lists, these represent a total capacity of nearly 108,000 k.w. Of this total, more than 87,000 k.w. (or 81 per cent.) is in plant of foreign origin. Is this a matter for congratulation?

"We might have added many other instances; there are Sulzer engines and Kolben sets elsewhere; there are Lahmeyer sets at Hull; there are enormous imports of A.E.G. material to the N.E. district. We have also quite left out of reckoning the myriads of German metallic glow lamps, arc lamps and motors; of American meters, transformers and tramway material. We pass over the German annexation of our colliery and mill work. We take no count of industrial defeats in South Africa, South America, Spain and elsewhere. Still, take it on dynamos and alternators for generating stations alone, they are a good example. Can we
1215 show anything approaching the above list in Berlin, Hamburg, Frankfort, New York or Chicago?"

WITNESS No. 263

MR. S. F. EDGE

Motor Cars

(S. F. Edge, Ltd., 14, New Burlington Street, London, W.; Motor-car Manufacturers).

December, 1908.

Output

The output of the motor industry in this country may be put at £5 millions. At the present time the imports approximate in value to the same amount. The Board of Trade returns give £2½ millions for complete cars imported and £2 millions for parts, but these parts consist almost entirely of chassis and may therefore be added to the first in order to give the total value of the import trade. There is practically no importation of small parts in the sense of their being assembled in this country and put together by British labour to form new cars.

There is certainly a tendency for the production of cheaper cars. This is due not to any cheapening
1216 of processes as the result of larger outputs, but entirely to the simplification of design which has now progressively taken place.

Relative Cost of Production

Cars can be produced here quite as cheaply as those which are imported. In fact the taxicabs which have recently been put on the London streets by British firms have been somewhat cheaper and better than those imported from France and other countries.

Last year's imports were swelled largely by the motor buses and this year's by taxicabs. Both trades have risen through the association between British omnibus and taxicab companies and the foreign manufacturers by whom they have been largely financed and promoted.

Labour

British manufacturers have had no difficulty in providing themselves with the necessary mechanical labour for their rapidly growing industry. They have been assisted in this by the discharges from Woolwich. The position of this class of working man is however worse because whereas formerly all the best mechanics were transferred to and found employment in Woolwich, now that avenue is closed to them they are more subject than before to motor manufacturers' conditions.

Numbers Employed

With regard to the number of persons directly and indirectly engaged in and dependent on the motor industry, I submit the following estimates:—

(A) At least 90 per cent. of the cost of the manufacture of motor cars is for labour pure and simple,
1217 and from the amount of cars produced in this country, reckoning a man, wife, and two children, there are 160,000 human beings depending upon the manufacturing side.

(B) 5,000 agents or distributors, employing about three men each, give us 20,000 persons, and to each of these we may allot three dependents, making a total of 80,000 in all.

Under this heading must also be reckoned petrol sellers and men employed in and about garages of all descriptions, and here again I assume a total of 80,000 in all.

(C) There are at least 50,000 drivers on the road, and to counterbalance the fact that many of them are unmarried, I only calculate one person as being dependent upon each of these, thus bringing up the total under this head to 100,000 persons.

Summarising, therefore, there are (A) 160,000 persons living by the manufacture of motor cars; (B) and (C) 260,000 persons living by distribution and maintenance of motor cars.

Wages

With regard to the money earned by the various classes, I cannot pretend to give even approximate figures for the earnings of dealers and agents, but the average wages of labour are as follows:—(1) mechanics £2 a week; (2) chauffeurs, £2 a week; (3) Garage men, £1 5s. a week.

WITNESS No. 301. 1218

JOSEPH EVANS & SONS (WOLVERHAMPTON), LTD.

(Culwell Works, Wolverhampton; Makers of Pumps and Pumping Machinery).

Hydraulic Engineering

November, 1908.

United States Competition

The most notable change, during the past year, has been with the American firms, who had hitherto imported their steam and other pumps largely into this country; they have retired from the contest, largely because they had cut the prices down, in competing with one another and the British makers, to such an extent that there was no profit for any one. After the Americans had combined together to form a sort of ring and shut out their own competition, they finally appear to have dropped out, or their connection was absorbed by English makers. Meantime, the prices are cut down generally in most of the lines so as to be unprofitable.

Use of Foreign Materials

The use of foreign material has to some extent decreased in this country. We refer particularly to consignments of American pig-iron, but cannot hear that much, if any, of this is now coming into the country, or being used in our particular line of manufacture. 1219

Dumping

A certain amount of tools and appliances are still being used in the pump trade, and also leather goods, these latter coming chiefly from Germany or Sweden. Nevertheless, in the Colonial and Foreign markets, there is a vast amount of American and German "dumped" material being supplied in the way of pipes, bars, shafting pulleys and similar material, also in manufactured goods in our line, including pumps and air compressors.

Foreign competition in the home trade has, we think, if anything decreased in the last few years, but, as mentioned in paragraph 1, this is because the prices are cut down to such a large extent that the foreigners could not make anything out of it.

British versus Foreign Pumps

In a general way, we find that the majority of the home users of pumping machinery now give preference to British-made pumps as compared with American and German, providing the price is about the same, or, at all events, only very slightly higher, and usually without considering the question of merit. Whilst on this subject, we claim that the American and other foreign-made pumping machinery against which we have to compete is by comparison much rougher, and not so strong or well-designed and fitted, as that we supply. We speak from knowledge, because we frequently buy the productions of foreign competitors, and have their goods at our works here, to dismember and examine same. A number of such machines are at present in our warehouse here.

1220 We also see competitors' goods under actual working conditions in many cases, and we rarely find that a customer who buys one of them repeats the experience more than once or twice, and in the end reverts in the majority of cases to a British-made article. In the meantime, of course, a great many orders are placed before the actual user gets the necessary experience.

Competition

Foreign competition has increased in the Colonies and neutral markets, this being due to a variety of causes, but largely the effect of "dumping," but, in other cases, aided by low railway rates, such as from the United States into Canada, or to South America, and preferential shipping freights, and also that many buyers and users in our Colonies and foreign countries are unable to discriminate between a well-constructed, but probably "plain-looking" article, as compared with a gim-crack, but showy, foreign production.

Some users are so ignorant that they judge the value of an article by the colour of the paint on it. We know people even in this country who would buy a pair of scissors made of malleable C.I. if they were nice and bright with a coating of nickel, providing they were a few pence cheaper than a well-made Sheffield production in honest steel.

Preference

1221 As regards the effect of "preference" in our trade, we beg to say that this is a very small benefit, and, so far as Canada is concerned, is nullified by the very low and preferential railway rates and shipping freights which the United States' manufacturers obtain on goods to the former country. We have a little preference, it is true, into Australia, and there this country has a reasonable and fair share of the trade, but the amount that the Australians are able to expend on machinery of our description is limited, and also similarly in New Zealand.

Patents

As regards the effect of the new Patent Act, this seems such an evasive sort of affair, that, at present at all events, it has no bearing on the matter of employment. It appears that nothing in any case can be done for some three years, and that it has to be shown to the Controller of Patents that reasonable facilities for obtaining any patented article wholly or partly manufactured abroad are not given in this country, and, as far as we can see, this is rather a difficult matter to prove, and, in our opinion, the effect can be evaded for a long time by any foreign manufacturer desirous of doing so.

Up to the present, we should say that not one penny worth of benefit has accrued to this country, nor is likely to do, for many years to come. It is true, there are rumours as to enquiries being made by foreign manufacturers for vacant land, etc., with a view to putting down works, should they be compelled, but we cannot find that anything tangible in the way of works or factories has actually been started as the result of this much-vaunted Patents Act.

1222

WITNESS No. 302.

G. & J. WEIR, LTD.

(Cathcart, Glasgow; Hydraulic Engineers).

November, 1908.

Recent Changes

The most notable changes during the past few years have been brought about in Auxiliary Machinery by:—

(*a*) The water tube boiler and consequent use of higher steam pressures;

(*b*) The adoption of the steam turbine.

These have reacted on the character of the auxiliary machinery such as Feed Pumps, Evaporators, Feed Heaters, etc. The adoption of the steam turbine has necessitated greater attention being paid to the securing of high vacuum by means of improved condensers and air pumps. The steam turbine is able to utilise a high vacuum to a greater extent than a reciprocating engine, so that research and investigation have been recently devoted to securing better results from these auxiliaries.

1223 There has been no retrogression, and an evolutionary progress has been the feature of the department of engineering in which we are engaged.

As regards our own business little foreign material is employed, and there has been no increase.

Foreign Competition

In our line the foreign competition we have had is chiefly American, and it has certainly diminished.

In the matter of hydraulic engineering, we do not think there is any tendency to consult German hydraulic engineers, nor even American, although the latter have had considerable experience in large pumping plants. There are as capable hydraulic engineers in England as in either Germany or America. In certain departments however such as water turbine work the Swiss are pre-eminent.

Patents Act

Certainly the Patents Act is for the better in so far as it provides extra work in this country. We have no alterations to suggest.

1224

WITNESS No. 303.

RANSOMES, SIMS & JEFFERIES, LTD.

Agricultural Machinery

(Orwell Works, Ipswich; Manufacturers of Engines and Boilers, Thrashing Machines, Agricultural Machinery, Ploughs, Field Implements and Lawn Mowers).

November, 1908.

Recent Changes

No appreciable change has taken place in our branch of the industry during the last few years.

Foreign competition is however increasing in the home market, and Canadian makers of Cultivators and ploughs are still increasing their sales in this country. No combinations have been formed that we are aware of to meet this competition.

Foreign competition in neutral markets is decidedly increasing.

The effect of the new Patents Act will certainly be to increase employment in this country

1225

WITNESS No. 304.

MARSHALL, SONS & CO., LTD.

(Britannia Iron Works, Gainsborough; Manufacturers of Portable and Traction Engines, Agricultural Machinery, etc.).

[During the course of the inquiry, the Commission suffered the loss by death of Mr. Henry D. Marshall, who was a member of this body from its initiation. The following additional statement has been submitted by the firm of which Mr. Marshall was the head.]

November, 1908.

We would explain that as regards what can be called Agricultural Machinery we only manufacture portable engines, traction engines, and thrashing machines, and it is of course only for these lines that we can speak.

1226 There have been no notable changes during the past few years in our line, and the volume of trade has been fairly well maintained.

Foreign Competition at Home

Foreign competition in the home market is practically non-existent. There have been a few cases we believe of foreign engines, notably of German make, being sold in this country, but we have not felt this competition.

Foreign Competition in the Colonies

Foreign competition in the Colonies is increasing, notably in the case of United States' competition. Our chief competitor is the International Harvester Trust, being a combination of American firms in our line, and also in the implement line, which latter section we do not touch. This Trust we are informed has a capital of £25,000,000 sterling.

Competition in Australia

This Trust having a huge protected market at home will no doubt make sufficient profit in their own country to enable them to send their surplus goods abroad at any price they can get almost. To give an example, we heard last month from our representative in Melbourne that the International Harvester Trust accepted a transaction of £140 on the following terms: The purchaser paid a deposit of £5 and was allowed 12 years to pay off the balance! A further case we have from Adelaide was the sale of a motor tractor by this Trust to a customer who had practically given his order for one of our engines. The American firm however agreed to deliver to his place 300 miles from Adelaide and to give him very long terms for it, and if not satisfied at the end of 12 months he could return it, and pay nothing for the use of it—the American people meanwhile loaning him an ordinary engine to do his work until the arrival of the motor. In this case we have not particulars of the length of the terms they gave, but we have given you the exact wording from our representative's letter. 1227

Further, owing to the increase in the duty on our machinery from 15 per cent. to 25 per cent. in portable engines alone, and from nothing to 25 per cent. in thrashing machinery, we are now having to fight against native competition in Australia, which is being fostered by the duty. Until this new duty was put on it was not possible for the native made article to compete. We have received particulars as to several engineering firms who have in the past endeavoured to manufacture portable engines without success, but who are now, under the increased duty, again taking up this work. In addition to this a further incentive is given to the local manufacturer from the fact that the Government Departments and municipal bodies have decided upon giving preference to the locally made article.

If we had come to an arrangement with the Colonial Premiers when they were over, instead of refusing to do so, this source of competition would no doubt not have arisen, and surely there is quite enough scope for the energies of the Australian people in other directions. We are not feeling the competition to any extent at present, but it must become more acute every year.

Competition in Neutral Markets

1228 Foreign competition in neutral markets has also increased and is very severe, and although the volume of trade has been maintained, the long credits accorded, notably by Germans, have seriously tended to diminish profits, and to make business difficult. We are feeling in some parts of the Continent the competition of some American firms, members of the International Harvester Trust.

Preference

As far as we are aware we only receive preference in Canada, Australia and South Africa, and in these three cases the preference in our trade is so small as to be really of little value.

WITNESS No. 268.

JOHN McLAREN, M.Inst.C.E.

(Midland Engine Works, Leeds; Agricultural Engine and Implement Manufacturer).

December, 1908.

Foreign Competition

1229 There has been an immense development of American export trade in heavy agricultural machinery. Formerly their competition was confined to lighter implements, such as harvesting machinery, drills, harrows, ploughs, etc. They are now formidable competitors in heavy agricultural machinery in South America, Egypt, Southern Europe (especially Russia), and the Far East. Until recently their agricultural motors, such as traction engines, were built on very crude and unpractical lines. They have however gradually assimilated their manufactures to the English type, so that their competition has been progressive and has now become formidable.

There is also an increasing tendency on the part of German and Austrian manufacturers to supply their own countries with steam road rollers, portable engines, thrashing machinery, and steam ploughing machinery, which were formerly supplied almost exclusively by this country. In Austria, for instance, the duty on traction engines has recently been nearly doubled, and has consequently made business practically impossible.

Home Markets

Foreign competition in heavy agricultural machinery in the home market is not much felt; but American competition has nearly destroyed the whole of the British home trade in harvesting machinery, and has had an appreciable and detrimental effect in lighter machinery and field implements. No doubt their strong combinations of manufacturers have given them an enormous power, not only in production but in distribution; and up to the present the British manufacturers have had no combinations to correspond with those of the American manufacturers.

1230 There has been some small movement in the direction of manufacturing in this country, machinery of a similar make and price to the imported article; but in a limited market like Great Britain it lacks the chief element of success, which is possessed by the American makers with their boundless home demand, assisted by their impregnable import duty.

Colonies and Neutral Markets

Foreign competition in the Colonial and neutral markets becomes more acute every day. The only Colony which gives a preference to our goods is Canada, and the duty there is so high that even with the rebate we are entirely unable to compete with the home producers; preference therefore, in such a case, is an absolutely unmeaning term.

Patents Act

I think the effect of the new Patents Act upon the industry of this country will be on the whole advantageous to the country at large, particularly to the working classes; because, although new manufactures may be started here with foreign capital, they will doubtless have to avail themselves of British labour. The Act has been too short a time in operation to enable one to suggest any alterations.

1231 WITNESS No. 305.

WATSON, LAIDLAW & CO., LTD.

Dairy Machinery

(98, Dundas Street (South), Glasgow; Manufacturers of Textile, Dairying, Sugar Machinery, etc.).

Cream Separators

The most noteworthy change in the dairy machinery industry in recent years is the almost general adoption of machines for the separation of cream from milk under the influence of centrifugal force, and the specialised manufacture of these machines has now become an industry absolutely distinct from the production of ordinary dairy machinery. There are great possibilities of development in this cream separator industry. There has been marked progress towards simplification in construction, resulting in more general adoption, and retrogression as explained in the third paragraph of these notes. In this industry profits are almost entirely dependent upon the achievement of a large turnover, as nearly the whole of the work of production is of a repetition character. The most outstanding change in recent times on the part of British makers is the recognition of the insufficiency of the home market and their dependence upon the development of a large export business.

Foreign Materials

The machines are constructed mainly from cast iron, steel, and tin-plate. Foreign materials do not enter into their construction.

Importation of Inferior Machines

1232 Foreign competition in the home market has greatly increased in intensity during the last few years. This competition is of a twofold nature. Many of the machines are undoubtedly well made and reliable, and are sold for prices which allow British makers to compete in the home and certain neutral markets. The regrettable feature is the increase of competition from a class of machine known and admitted to be of inferior construction and sold at very low prices. They are manufactured in extremely large numbers and appear in all markets. Their competition is exceptionally keen in Great Britain. The farmer is tempted by the low price, and after almost endless trouble and vexation loses faith in the utility of cream separators in particular and modern methods in general. This feature has a highly detrimental effect upon the separator industry and is the retrogressive factor referred to in the first paragraph. It is exceptionally serious in Great Britain, where several thousands of these inferior machines are imported and sold annually.

Foreign Competition in Canada and Australia

Practically every British Colony offers a good market for cream separators, more especially Australia and Canada. British trade with these markets is certainly on the increase, but not in proportion to that of foreign competitors who at present get very much the largest share of this business—preference would here be of value. Germany, Austria, Belgium and France also offer good markets and British makers are struggling to compete therein though with small success so far. The Scandinavian markets are practically closed to British goods, which is mainly due to their being the home of the principal competitors.

Foreign Tariffs and their Effect

1233 Foreign tariffs present a great obstacle, which, however, can be surmounted in many countries, more especially where there is no home production as in the case of France.

Foreign competition in all markets tends to increase very rapidly. In countries where the home market is protected and a demand for dairy machinery exists, a manufacturer has little hesitation in embarking on the manufacture of cream separators. Outside competition being restrained it is possible to develop a good home demand, and when once engaged in the manufacture the natural outcome is an effort to develop an export business. This is not the case in Great Britain, and the matter is exemplified by the fact that there are approximately 200 Continental competing makes and only three British.

A similar effect would possibly be found in all young or new industries, the difficulty mainly lying in the inception, as, when started, strenuous efforts are made to continue existence.

Preference

Preference would undoubtedly have a very beneficial effect on this particular industry, as it is one which would peculiarly adapt itself to Colonial requirements.

Patents

The effect of the Patents Act is not yet manifest. Existing patents held by foreign firms are for parts only, no complete machine being patented; in any case its effect on British employment in this industry will be favourable, the question being one of degree.

Textile Machinery Importations from U.S.A. 1234 The most noticeable change in our branch of the textile machinery industry has been the importation of American hydro extractors of small size sold at a very low price, and very much less than the same machines are sold at in the United States. This price was below our cost of production of a similar article, and obliged us to lower our selling price below what would pay. By endeavouring to increase our output so as to manufacture cheaper, we made a sacrifice for some years by selling below cost until we got sufficient orders to enable us to manufacture in quantity ; even now we have no margin of profit but only our shop expenses, but had we not taken this step, this branch of laundry and textile machinery would ultimately have been entirely in the hands of the Americans.

Dumping Foreign competition has increased and in our case is chiefly American. The imported machinery is sold at prices which we understand are considerably below what the same machinery is sold for in America, very probably it is surplus stock dumped on the British market at cost and in some cases perhaps less than cost.

Foreign Tariffs Hydro extractors are exported in small quantity due we consider to local supply abroad being so ample as to allow a very low tariff to have considerable effect. The tariff is an absolute obstacle to export to the United States being 45 per cent. ad valorem.

Colonial Trade There is little or no competition from foreign firms in this line in our Colonies. We have a small
preference in Australia but observe no effect therefrom. 1235

Patents The new Patents Act so far has had no effect, but we think cannot be otherwise than beneficial.

December, 1908.

Sugar Machinery It is perhaps necessary to explain that we do not manufacture complete sugar machinery plants, but only that section of machinery which is alike serviceable for cane sugar and beet sugar.

Beet and Cane Sugar Machinery The most notable change in the sugar machinery industry in the past few years is a fall in prices as the result of competition. This competition is now largely from the Continent of Europe. The development by their respective Governments in past years of the production of beet sugar has brought a large number of engineering firms into existence or increased prominence, and they have prospered financially. Their ambition has been whetted and they have now entered the field of cane-sugar machinery which in former years was mostly confined to this country.

Progress in design and improvements in the practice of sugar-machinery making in this country was very much hindered during the years of the excessive beet-sugar importation into this country and into other countries, because our engineers, as already pointed out, had only the practice of cane-sugar machinery ; and as the demand for cane-sugar declined, being ousted by the beet sugar, the engineers in this country
could not find customers who were able or willing to introduce improvements, therefore the art of making 1236
sugar machinery in this country did not make progress in keeping with the advancements which Continental engineers were able to make in improving beet-sugar machinery.

Foreign Materials For ourselves, we do not use foreign materials excepting where specified ; we would rather make a sacrifice if necessary and use home material for we believe that course is better in the end. In the event of any industry dropping out of existence in this country, we would doubtless have to pay more for the foreign material eventually. We prefer to help them to keep all home industries alive. We cannot speak for the practice of other firms.

Turn-over and Profits To make a " living wage " by making sugar machinery one has now to turn out more than double the quantity of work as compared with say 25 years ago, and even at that the margin is small. This means that by a large turnover one has a chance of making economies in production.

Competition in Export Trade Java, British West Indies, Mexico, South America, Formosa, Australia, Africa, Continent of Europe, Sandwich Islands, Cuba, Porto Rico and British India are the chief export markets. The markets have spread of late years and all have decreased in demand for British machinery, the quantity exported being kept up by a larger and more widely-spread number of buyers. Tariffs play a very minor part in this decrease, except in the case of America and her colonies whose tariff is prohibitive, and has in the case of Porto Rico
and the Sandwich Islands practically put an end to what was at one time a profitable business. Generally 1237
speaking, however, a strong foreign competition has done more to effect this decrease than direct tariffs on the machinery. The forced growth of the machinery industry caused by the European bounties has still a powerful effect on the markets.

Preference Foreign competition in British colonies and neutral markets has distinctly increased because of the larger number of competitors. We can give no illustrations of the effect of preference on our trade, as we have never received any. Our machinery is either under the same tariffs as our foreign competitors or put on the free list along with them.

Patents Act The new Patents Act, as far as we are concerned, has as yet small effect, but we think it will have an ever-increasing effect for good, judging from the indications, small as they are as yet.

1238

WITNESS No. 306

FRASER & CHALMERS, LTD.

Mining Machinery

(3, London Wall Buildings, London, E.C.; Mining Machinery Manufacturers)

Capital Investments

Fluctuations in extent of business are dependent on financial success of mining itself, on new discoveries of mining fields, and on market excitements leading to promotions of new mining companies. For several years there has been an absence of excitement and quiet times with less investment of capital in new enterprises.

Imports

Foreign competition, chiefly American and German, is very active all over the world in mining machinery. We use some cheap boiler plates occasionally from Germany, but have not increased consumption of late. In the home market foreign competition has increased steadily of late years, *i.e.*, American and German.

Exports

The chief export markets are the English Colonies and South America. Foreign tariffs are not of marked disadvantage now because machinery is practically as cheap in the protected countries as here owing to home competition. We make no shipments to the United States and Germany, but the removal of tariffs there would probably not change the position much for us, on account of low prices already prevailing there.

1239

Colonial Trade and Preference

In the Colonies competition has tended to increase from U.S.A. and Germany. In Canada preference is helping us a little, but U.S.A. makers cut prices to meet it. In the Transvaal preference is small and does not seem to affect trade; foreigners pay the difference and compete. Machinery prices have not advanced at all in either case by the preference, competition being very active.

Patents

No effect is yet noticed in consequence of the Patents Act, but foreign patentees show inclination to get British makers to take licences and manufacture for them.

WITNESS No. 307

HEAD, WRIGHTSON & CO., LTD.

(Teesdale Iron Works, Thornaby-on-Tees and Stockton Forge, Stockton-on-Tees; Mining Machinery Manufacturers)

November, 1908.

1240

Recent Changes

In collieries a notable change has taken place in the last two or three years, in the fact that so many collieries are screening their coal into different classes. The result is a demand for special machinery for screening, and in supplying this demand some English firms have had a profitable turnover.

Other mining machinery is mostly for abroad.

The use of foreign materials has diminished, in the case of iron and steel, owing to arrangements between the makers.

Also foreign competition in the home trade has tended to diminish, because British manufacturers are supplying the plant which originally came from Germany.

Our chief export market is South Africa, and British trade is increasing because British manufacturers are beginning to realise the necessity of having their own expert staff on the spot, instead of trusting to agents.

We do not see much diminution in foreign competition in the Colonies and neutral markets, but the Preference tariff in South Africa is a great help to British enterprise.

1241 We have not seen much effect from the Patents Act as yet upon British industry.

WITNESS No. 308

ROBERT HUDSON

(Gildersome Foundry, Leeds; Engineer and Ironfounder)

December, 1908.

Foreign Competition

We have lost all German and American trade and do practically nothing with any protected country. During the last 15 to 20 years the Germans and Belgians cut the trade in light rails and mine trucks, &c., for the British Colonies so very low that we can only compete by selling German rails.

German competition increases enormously every year, and the keener the competition the more our turnover as merchants advances, and the turnover of goods manufactured by us in this country declines.

Export Markets

1242 Exports of our classes of manufacture go to South Africa, India, Australia and South America and the Straits Settlements.

We find our South African turnover has increased by ten times chiefly owing to their preferential duty.

Foreign tariffs preclude any business with the United States, and make it difficult to deal with Canada, Australia, Russia, &c.

Colonial Trade and Preference

Foreign competition has increased in our Colonies as at home, except in South Africa, where, as we say, the 3 % preference has enabled us to open out and increase our turnover by ten times.

Preference will be very beneficial to our trade if duties are applied absolutely fairly, and the duties should not be heavy enough to encourage large syndicates to monopolise the supply of raw material. We should be very much opposed to it unless all our Colonies gave us a corresponding preference.

WITNESS No. 309

1243

THE SANDYCROFT FOUNDRY CO., LTD.

(Sandycroft, near Chester; Mining and Electrical Machinery Manufacturers)

December, 1908.

Recent Changes

The most notable change that has come within our experience is the rapidly increasing introduction of Electrical Transmission of Power.

The tendency of recent years has certainly been progress in the form of improved machinery and appliances, labour-saving devices, etc.

The rate of profit in relation to turnover has, in recent years, steadily declined owing to ever increasing competition. This competition is met with by us in Home Trade chiefly from manufacturers in England; but in the Colonies American and German competition is very severe.

Export Trade

The trade with India and South America is fairly regular. With the Australian Colonies it has fallen off considerably in recent years—apparently owing to the requirements being supplied by Colonial manufacturers and to hostile tariffs. Tariffs in the other markets mentioned are not an obstacle to our trade. 1244

Preference

We meet foreign competition chiefly in the Transvaal, where it has been very severe, and apparently steady for many years past. An instance of what would be gained to manufacturers in this country by a preferential tariff in the Transvaal is to be found in the supply of "Shoes and Dies" for Gold Stamp Mills, in which the price has been reduced by German competition to a point at which the trade in them can hardly be carried on at a profit, and a large share of which has consequently gone from this country to Germany.

Patents Act

We do not anticipate any serious effects upon our trade (either good or bad) from the new Patents Act.

WITNESS No. 310

1245

Makers of Mining Machinery

December, 1908.

Recent Changes

One of the most notable changes during the past few years in mining machinery is the adoption of high-class drop-valve gear winding engines, whereby great economy in the consumption of steam is attained.

The use of foreign materials has increased in recent years owing to the cheap price at which they can be obtained.

Foreign competition in some classes of mining machinery in the home trade has considerably increased in late years.

The chief market for mining machinery is South Africa, and here our trade has increased in spite of foreign competition. We believe foreign competition in the Colonies and neutral markets has tended to increase.

The effect of the new Patents Act upon the industry and British employment generally cannot be anything but good.

1246

WITNESS No. 311

LORD BROTHERS, LIMITED

(Canal Street, Todmorden, Lancashire ; Makers of Textile Machinery)

December, 1908.

Textile Machinery

There has been no retrogression during the past few years in our branch of the machinery industry but on the other hand much progress. The use of foreign materials has not increased at all, and foreign competition in the Home Trade is a negligible quantity.

British textile machinery is exported wherever spinning exists. Moreover it is increasing everywhere except perhaps the United States of America, where 45 per cent. import duties have stimulated American competition in their Home markets, but have at same time so increased their cost of production as to shut them out of all other markets but their own.

Foreign competition in Colonial and neutral markets is non-existent. We want no Preference as it would only act as a somnolent.

1247

If mining royalties could be done away with we might get cheaper iron and the cheaper we can get raw material the better we can climb over other countries' "Protection" walls, but any duties we might put on would only make two walls to get over instead of one.

WITNESS No. 312

Makers of Textile Machinery

December, 1908.

Fluctuating Demand

Formerly there was a continuous output of machinery to supply the demand. Now the demand comes in rushes, some years there would be little or no business, as was the case from 1900–05, and in other years there would be periods of great demand, when any existing places could do with double the size of the establishment in order to cope with the increased trade.

The heavy duties in Germany have to a great extent killed the textile machinery trade with that country, and the same holds good with America, Russia and France.

1248

Home Trade

Owing to the large importations of textile fabrics, the demand for textile machinery in the home trade is not as good as it otherwise would be. Foreign looms are not imported into England except by a few firms in the silk trade.

Exports

The chief markets for textile machinery are Germany, France, Austria, Russia, Italy, Spain, and America, but owing to the high duties, as stated before, trade with Germany, America, Russia and France has never been so great. It would be a great advantage to possess the power of bargaining with other countries for the reduction of their tariffs. The Colonies of Australia and New Zealand are only just opening out for manufacture, and so far we are not aware of much foreign machinery having been introduced.

Patents

We are in negotiation for one or two foreign inventions which are patented in this country, which we hope to be able to make, and if these negotiations are carried through, it will undoubtedly tend to give more employment to British workmen.

WITNESS No. 313

1249

Makers of Textile Machinery

(For Flax, Hemp and Jute, Twine-making and Rope-making)

December, 1908.

Recent Changes

Our experience only relates to machinery required in the spinning of flax, hemp, jute, twine and rope making machinery, &c., and there are no notable changes to report in the past few years. The flax industry owing to the prosperous times in the United States of America previous to October, 1907, experienced a period, extending over about 18 months, of great activity. This enabled some of the mills to renew their machinery, but unfortunately since October, 1907, short time has been general in the flax spinning mills, and orders for machinery have been practically stopped.

Materials

There are no foreign materials used in the construction of textile machinery for flax, hemp, jute, or for machinery for twines and ropes.

Competition in Foreign Countries

Some firms in Germany and France have started to make machinery for flax, hemp and jute fibres, twines and ropes, within the last few years, and their competition is very keen in those countries, but is not felt in the home or Colonial markets.

Tariffs 1250

All countries which use flax, hemp and jute fibres require machinery for spinning them, and the British makers practically control these markets. Owing to bad trade in the flax-spinning industry British trade with France, Belgium, Germany, Austria and Russia is diminishing. The foreign tariffs do not affect the English producer of these machines as they are paid by the foreign customer, but in France and Germany the duties on English-made machinery have been the cause of the French and German makers starting to manufacture machinery for the above-named fibres.

Patents

We have no experience of the effect of the new Patents Act upon the industry of textile machinery for flax, hemp and jute fibres, twines or ropes, nor are there, so far as we are aware, any special foreign patents relating to this machinery. We do not think the new Patents Act will have any effect as regards this special sort of textile machinery.

WITNESS No. 314

JAMES BERTRAM & SON, LTD. 1251

(Leith Walk, Edinburgh; Paper Making Machinery Manufacturers)

December, 1908.

Paper-making Machinery

Home Trade

We consider that the home market for the paper-making machinery industry has for some years past been steadily retrograding. The yearly imports of paper (which is free of duty) is increasing; last year over £6,000,000 was imported. The result of this enormous quantity coming yearly into this country has been to prevent the home paper manufacturers from greatly extending their mills, and it has also practically stopped the erection of new paper mills.

Effect of Increasing Imports

Within the last twenty years not more at the outside than half a dozen new mills have been erected in these islands, whereas if the manufacture of even *one half* of the above £6,000,000 worth of paper could be captured for home manufacture, at least 60 large two machine mills would be required to meet the increase of trade thus developed. These sixty mills would represent a fresh capital of £3,000,000, and they would employ something like 10,000 to 15,000 hands. If sufficient *new* mills were not erected the existing mills would have to be very largely extended. Although only some half-dozen new mills have been erected in the last twenty years, it is calculated that at least fifty mills have been closed during the same period.

It follows from the above that the *home* trade of the paper-making machinery industry as a whole has suffered. There are only six firms of importance engaged in the manufacture of paper-making machinery in this country, and it is necessary for them to look very vigorously for business from such foreign countries as are open to them. If the paper, which presently comes in free, had even a small duty of say 10 per cent. put on it, there can be no doubt whatever that a very large increase in the machinery business would accrue. Of course many of the existing mills have largely extended in recent years, but this extension is as nothing compared to what would happen if paper was placed under even a small tariff. Profits in relation to turnover are steadily decreasing. 1252

Materials

Little foreign material is or has ever been used in this country in the manufacture of paper-making machines.

United States Competition

Foreign competition in recent years has increased. Three large paper manufacturers in the neighbourhood of London have within the last five years imported much machinery from the United States. It is estimated that these three firms, whose names can be given, have purchased an aggregate of £150,000 worth of machinery during the above-mentioned period. Of course no doubt the buyers say that they are getting better value, but if an import duty of 45 per cent. were in vogue similar to what the States put against us, then all the above machinery would have been produced at home. Even if a small duty of 10 per cent. existed, there is little doubt these buyers would never pay it, but would assimilate their ideas with those of the home manufacturers. No paper manufacturer will pay any duty, however slight, if he can avoid it. 1253

Effect of Foreign Tariffs

Sweden has been a good market until a few years ago, when a duty of 10 per cent. was put against machinery, since then orders are more difficult to get, and several Swedish engineering works have sprung up, and are now getting the bulk of the business.

Norway used to yield good business in this machinery, but quite recently a 10 per cent. ad valorem duty has been put on, which has already had a distinct adverse effect.

We are looking to China and Japan for new business, the Argentine takes some machinery, but most European countries for important business are impossible, as practically all have heavy tariffs against us. The United States is a sealed door, as there a prohibitive duty prevails.

Canada

Only one of our Colonies, Canada, has a large paper-making industry, and we think we may fairly say that the United States has practically captured the paper-making machinery there. Our geographical position as regards Canada is unfortunate for this class of business, and notwithstanding the preference given we have not as a rule been able to compete with the States. Lying as they do within a few hours' railway

1254 run of Canada's centres the engineers there are able to be constantly in touch with the buyers of machinery, and if a large overhaul or addition to plant is required, not to mention a new mill, they have this advantage which is a great one.

Even a resident expert from this side cannot produce extensive and very varying specifications and prices without referring home, and cabling is almost impossible in this class of business. Others may have different views, but these are ours, and we have tried the business. The Canadian paper makers say also that it is altogether convenient to have the makers of their machinery at their doors as breakdowns and suddenly desired additions can thus easily be procured. The time required to get over plans and specifications is however the great drawback, the cost and time required for shipment is also much against us, and in favour of the States.

Patents The Patents Acts is having a good effect, but the period of its existence has not been long enough to say very much, but we know that some foreign patented articles are now being manufactured in this country. It is a first and most excellent step.

1255

WITNESS No. 315

Engineers and Millwrights

December, 1908.

Recent Changes Paper-making machines are made much wider, and driven at a higher rate of speed. Improved styles of gearing have been introduced. Refining engines are more largely used, &c. There has been progress, but no retrogression. The effect on profits, due to competition, is that more turnover has to be done for a less profit than formerly.

Increased Speed Among the most notable changes during the past few years, in the paper-making machinery industry, has been the increase of speed of the paper-making machine itself, when making news paper from about 350 ft. per minute to 550 ft. or thereby. In connection with this, the breast roll end of the wire frame has been raised several inches, so as to allow the liquid pulp to flow upon the wire of the machine, at about the same rate as that at which the wire is travelling. The gearing of paper-making machines has changed from flat pulleys to cones, applied in various ways, and more recently the driving of the entire body of a paper-making machine by a single rope, with excellent results.

1256 Many minor improvements have been made in the details of the paper-making machine, extending from the stuff chests to the strainers, wire frame, couch rolls, press rolls, drying cylinders and calenders. The use of refining engines in preparing pulp for the paper-making machine has greatly increased.

The materials from which paper is made cannot be said to have changed entirely in recent years, but wood pulp has certainly extended in its use, and there is a search being made for other materials, such as bamboo, which is being tested and enquired about in several parts of the Far East. More attention is being paid to the saving effected by reclaiming caustic soda from the liquid in which pulp has been boiled, converting it into ash, and recausticising it ready for use.

Other Improvements Many attempts have been made to improve beating engines by raising the roll so that it may work clear of the stuff—by increasing the number of rolls—and by increasing the number of the fixed plates which work in contact with the rolls; but notwithstanding these efforts, the original Hollander beating engine still holds the chief place as favourite in the majority of paper mills throughout the world.

Several new machines have been put on the market for repulping waste paper, apart from the Kollergang or Edge Runner, which is still largely used. The new machines have taken the form of kneading machines, which mix the waste paper with water, and by passing it between various kinds of blades, more or less in contact, the paper is brought back to the state of liquid pulp.

1257 Paper-cutting machines, as used in paper mills, have not been much altered in design from the revolving knife design brought out many years ago. There has however been an increase in the number of duplex cutters that have been used, these being merely the addition of a second revolving knife, so that papers may be cut into sheets of different lengths from the same web.

Simple appliances have been added to the paper cutter whereby sheets having water-marks may be accurately cut so as to keep the water-mark in or near the centre of each cut sheet. These cutters are meant to deal with several reels of paper from the paper-making machine at one time, generally from seven up to twelve, but when special water-marked paper is used, it is usually passed through a single web at a time.

Reeling machines for making all kinds of webs of paper for printing and other purposes, have been improved, so as to give firmly wound reels, with good edges, free from fluff, and so level that no special trouble is caused in printing or other after processes.

Lessened Cost The steam power required for driving paper-making machines has been lessened in cost by papermakers now adopting more than formerly the method of using the exhaust steam from the steam engines driving the machine to heat the cylinders which dry the paper.

1258 In most cases, this economy amounts to practically driving the machine without any additional cost of coals, over what would be required to produce the necessary steam for heating the drying cylinders needed to dry the paper. Another improvement is the introduction of Roller Bearings for the journals of drying cylinders, reducing friction and saving 30 to 50 per cent. of the driving power formerly required.

The foregoing indicates in a brief way, the progress which has been made, and it cannot be said that there has been any retrogression.

Profits and Turnover

The effect on profits, in relation to turnover, is produced chiefly by competition, and a general statement made in most businesses to-day, including engineering and paper-making, is that the profits are much reduced in relation to turnover, so that a greater volume of work requires to be done before a small percentage can be paid upon capital, after proper establishment charges, depreciation, and reserve have been provided for.

Raw Materials

Foreign raw materials used in paper-making have increased, these being chiefly wood-pulp from Scandinavia and Canada, and esparto grass from Spain and North of Africa, all owing to the decrease of rags and all paper-making materials in this country. In paper making the use of wood-pulp, both mechanical and chemical, imported from Norway, Sweden and Canada has decidedly increased, owing to the want of other materials to compete with wood-pulp in price and in quality.

Machinery Materials

1259 In engineering, foreign materials are but little used, as the chief portions of machinery are made of cast iron from ore, chiefly manufactured in Britain; also brass castings, from copper and tin, produced to some extent in this country, although there is a large import of copper and tin from America, Australia, etc. Some brands of pig-iron are imported from abroad into Middlesbrough, and a considerable amount of mild steel, in bars and beams, is made on the Continent and imported from Belgium, Holland and Germany.

Competing Imports

Foreign competition in the home trade is not greatly altered in the last few years. It is chiefly represented by a few paper-making machines from America, two or three from Germany, which have proved unsuccessful, and web calenders and coating machinery for fine art paper from Germany.

United States Machinery

In paper mill engineering, foreign competition has tended to increase owing to a notion prevailing
that American paper-making machines for the production of news paper are more suited to run at high
speeds, such as 500 or 550 ft. per minute. This originated through American paper-makers using a
higher quality of pulp, capable of bearing the strain of fast running, and for their product they could get
a better price than was obtainable in Britain. Some of the most enterprising paper-makers in this country
carefully studied the question, and came to the conclusion that at about 300 ft. per minute, the maximum
speed was attained at which the cheapest mixture of pulp could be profitably made into paper. Above
that speed, though more quantity could be produced, it required a more expensive mixture of materials,
and even then the amount of loss through breakages of the paper and stoppages of the machine more than 1260
absorbed any profit which would be due to a greater production in a given time.

German Machinery

German machinery for paper-makers has chiefly taken the form of web-glazing calenders and machines for coating paper with starch and similar compounds to make highly finished art paper for the printing of illustrations from process blocks.

In both of these cases it has now been amply proved that the British-made paper-making machine, when constructed by the best makers, is equal to the strain of the highest speeds that are possible on any such machine made in any country. It is shown that there is not the smallest difficulty in producing machinery which will run at speeds far in excess of anything yet used by paper-makers without the machinery having reached its limit of steady and satisfactory running—the point of speed being one of paper-making materials and manipulation rather than of engineering.

In the case of the web-glazing calenders and machinery for coating paper, it is also now proved that such machinery can be equally well made in this country, with the additional stability which is a national specialty.

Export Markets

The chief markets for British paper mill machinery are India, China, Japan, Norway, Sweden,
and other parts of the Continent of Europe; also to a small extent, Canada. 1261

It is difficult to say to what extent British trade with these markets is increasing or diminishing, there are various causes existing which make it very difficult to come to a decided opinion. For instance, in India practically all paper mill machinery required is purchased from Britain. In China and Japan there is great competition for the orders for paper mill machinery by British and American makers chiefly, although German makers are also in the field. In Norway and Sweden, German and British makers have about an equal field, and the same may be said of Finland and Russia.

In Germany, however, British paper mill machinery is now seldom purchased, owing to the large number of German engineers who cater for these orders. This state of matters also exists in France; that is to say, they purchase their machinery locally.

German Competition

In the other European countries where paper is made, the machinery is probably chiefly supplied from Germany, and a small proportion of it from all the other countries where there are paper mill engineers, as each firm has certain specialities which manage to approve themselves to different makers in different countries.

1262 It is often heard privately, that orders are obtained by German engineers through the giving of large commissions, and by granting very extended terms of payment, whereas British and American engineers nearly always ask for cash payments such as—one-third with order, one-third when ready for shipment, and the balance against bills of lading when handed to the Purchasers' Agents. Of course, modifications are made to suit circumstances, but the foregoing is the general position.

Effect of Tariffs As to foreign tariffs, these are repeatedly brought up as a reason for asking very light machinery; for instance, for Russia, and in every country where a heavy tariff on paper mill machinery exists. There is no doubt that it protects the home industry where it exists, and favours the nearer competitor in point of distance, as, of course, it is the total price of the machinery erected that is looked at in the long run.

In the United States the tariff is absolutely prohibitive, being 45 per cent., as there are a considerable number of important engineers in the United States making paper mill machinery for which the demand is large and the prices obtained very remunerative. It is very difficult to even sell a highly approved patent appliance which has gained an excellent reputation in Britain, because, if the appliances should cost £1,000, the Government ask for £450 before it is allowed to enter the States. Business under these circumstances, it is quite evident, must be effectually stopped.

1263 **Canada** Canadian buyers of paper mill machinery are chiefly supplied from the United States, because of the geographical situation enabling personal intercourse, and the supplying of goods to be done in one or two days as compared with one and a half or two weeks when dealing with Britain. The Canadian tariff is quite favourable, but the distance and habit of going to the States prevents any bulk of orders for paper mill machinery coming to Britain, even though circulars and catalogues are continuously sent and travellers pay periodic visits.

Foreign Competition in India and Australasia In India, Australia and New Zealand the machinery is chiefly British. In neutral markets competition is increasing from the United States and the Continent, owing to the great increase in manufacturing power and the want of abundance of work causing keenness of competition. The tendency will certainly be for foreign competition to increase, because of the greater number of competitors finding it difficult to keep their works fully employed in the markets which they already possess.

Preference In the one case where manufacturers hoped for an increase of business as the effect of preference, namely Canada, it has not taken place—almost entirely due to the distance from this country and the nearness to the United States.

Patents One effect of the new Patents Act upon the paper-making machinery industry, is that there appears to be an effort made to secure either the sale of foreign patents or the manufacture of them in this country on behalf of German or American Patentees. Transactions in this matter are not yet sufficient to

1264 enable alterations to be suggested, but it appears that it is entirely a good thing that the Patent Law has been altered so as to make it compulsory that all foreign Patentees obtaining a British Patent should make arrangements to have that Patent manufactured in Britain.

WITNESS No. 316

JAMES MILNE & SONS

(Milton House Works, Abbey Hill, Edinburgh; Paper-Making Machinery Manufacturers)

Changes The most notable recent changes in the trade are:—Steady progress; quicker speeds; larger and wider machines, especially in the newspaper trade; profits less owing to home competition, bad trade, and foreign competition.

1265 **Foreign Materials** The foreign materials used in paper-making machinery do not seem to have very materially increased in recent years although the competition is keen and the trade hard to keep with small profits.

Imports Foreign competition has a tendency to increase owing to free entry of goods here and the foreigner has every inducement to sell cheaply here as they get good prices at home. We have little chance when we sell the foreigner cheap coal to oppose us.

Foreign Tariffs Foreign tariffs are decidedly against us and prevent export, and we find our estimates are generally out by about the amount of the tariff or duty. Our principal export trade is with Norway and Sweden; and Sweden is now undoubtedly making many machines at home which used formerly to be bought in Great Britain, owing to a duty of 10 per cent.

Colonial Trade Foreign competition in the Colonies has increased because we have no preference except from Canada, and our exports to Canada have increased—see returns—owing to preference given to Great Britain of 25 per cent. rebate.

Patents The new Patents Act seems to be working for good as it compels foreigners with patented specialities to either erect works in this country or contract with works here to make them, which means more work here and therefore more employment.

WITNESS No. 317 1266

D. STEWART & CO. (1902) LTD.

(London Road Iron Works, Glasgow; Sugar Machinery Manufacturers)

Sugar Machinery

December, 1908.

Brussels Convention

The most outstanding feature in connection with the sugar industry of recent years is the suppression of the bounty on exported sugar from foreign countries. This dealt of course with beet sugar, but as a consequence it gave a great impetus to the manufacture of sugar from cane and naturally increased the demand for the machinery required in such manufacture. The effect of this has certainly been to make for progress both from the increase in amount of business done and the improvement in the prices.

Size and Location of Factories

There has also been a very marked improvement in the direction of substituting large central factories for numbers of small ones, and when installing factories in new land to make them of very large size, the object being of course to produce large quantities of the product or products and thus reduce the manufacturing cost and increase the margin of profit or even cheapening the finished product with the same margin of profit. There has also been a tendency to manufacture in factories on the spot, only one, or at the most, two products instead of three or four of varying qualities as was the case formerly. 1267

Cuba

For instance, we may cite the case of Cuba, of which we have most knowledge and where some of the largest factories in the world have been installed. It is the almost invariable custom there to manufacture one product of unrefined sugar, polarising about 96 per cent. which is shipped to American refining houses. The great desideratum in Cuba is quantity rather than quality. We have ourselves recently completed a factory there which can grind 2,500 to 3,000 tons of cane per day or over 300 tons per day of unrefined sugar polarising 94 per cent. to 96 per cent. Most of the large Cuban factories make a considerable profit although they ship their product all to the United States, where there is preference in favour of Porto Rico, Hawaii and Philippines.

Jamaica

In Jamaica on the other hand, while the movement referred to has been going on slowly, even the largest factories are small compared with those in Cuba or the Hawaiian Islands and several products are made, some for consumption in the Island without further refining. The situation in Jamaica however is further complicated by the fact that nearly every factory there makes rum which is a paying article and indeed it is very questionable whether the manufacturing methods employed in Jamaica are sufficiently good to enable them to make sugar at a profit if the revenue realised from the rum were left out of account.

Foreign Competition

There is no doubt that there is severe competition between British, American, French and German manufacturers of sugar machinery in the various markets of the world, and while this has no doubt caused a diminution of profits to the manufacturer it has also very much benefited the sugar makers by improving 1268 the process, principally in the obtaining of very much higher extraction per ton of cane owing to the use of much heavier and more efficient machinery. The sugar machinery industry of course is not alone in this economical improvement, which all competition invariably produces, and the logical result of this competition has always been to increase the demand for more efficient machinery while diminishing the profits on a given turnover.

Use of Foreign Materials

Dumping

We should be inclined to say that the use of foreign material in engineering manufacturing has certainly increased within recent years, so far as we are concerned, and we believe this can be said of most British engineering firms. The materials imported are either raw material or semi-manufactured material —in our case, rough castings and forgings. The reason for this import is entirely one of price, as it would appear that in Germany, and this is the country from which most foreign material is purchased, there is a bonus paid to manufacturers for goods exported, besides, the prices are so much lower than what we can obtain here that it is evident that they are being sold under cost of manufacture and thus at the expense of rival engineering manufacturers in Germany because they are not serious competitors in the open market for finished engineering products such as we are considering.

We believe that a good many steel castings are bought in this country from Germany, but speaking for ourselves, we have always been able to obtain them on more suitable terms as to price or delivery at home. In the case of foreign forgings however there is no doubt satisfactory articles are obtained 1269 cheaper in Germany, but in a very important branch of our work where we buy from Germany certain raw materials which amount to perhaps 10 or 15 per cent. of the finished price, there is no sign of German competition in the market to which we export although there is no preferential tariff there in favour of British goods.

Competition in the Home Market

As to foreign competition in the home trade, so far as this relates to the importing of raw or semi-manufactured material we believe there has been an increase in the last few years, but we ourselves have a fairly large home trade in textile machinery and we do not remember of any case where there has been any serious foreign competition, our competitors have all been in the United Kingdom but the competition is fairly severe. We believe that while there is a demand for special machinery designed for a specific purpose and requiring a knowledge of chemical processes or very exact workmanship Germany and Swiss manufacturers stand a very excellent chance of getting the work even in this country.

Competition in Colonial and Neutral Markets

The markets to which sugar machinery is exported are the British Colonies and Dependencies, chiefly British West Indies, Demarara, Mauritius, the East Indies, Australia and Natal, and the foreign countries to which such machinery is exported are Cuba, Mexico, the Central and South American States, Formosa and China. We think we are right in saying that in regard to all the markets we have mentioned, British-

1270 made goods are still able to hold their own both as to price and quality. Of course there are several considerations which sometimes determine that the work should be placed abroad. We do not think that the price accounts for work going past this country. In Cuba we know there is a preferential tariff in favour of American machinery of 25 per cent. discount on the duty which is 10 per cent. of the ad valorem price, but in spite of this we have no great difficulty in securing the orders from Cuba at good prices. There are some forms of pumps and evaporating apparatus for which French and German manufacturers are preferred, because of these being specialities and not really because of the price.

Preference

No doubt if the preference for foreign machinery was made sufficiently high it would exclude our manufacturers, but on an equal basis the cost of manufacture of British machinery is certainly less than that of foreign, and where a preference is given in our favour in say some of the British Colonies, we question whether it is of any great value as the duty itself is so great that it precludes the supply of the work from anywhere except the Colony itself.

Patents Act

The effect of the new Patents Act should certainly encourage the establishment of further industries in our manufacturing districts. It has not been in existence long enough for us to form any definite opinions as to its results.

1271

WITNESS No. 318

MIRRLEES WATSON CO., LTD.

(45, Scotland Street, Glasgow; Sugar Machinery Manufacturers)

December, 1908.

Brussels Convention

Since the ratification of the Brussels Convention there has been a distinct improvement in the cane sugar machinery industry. Orders for complete new factories for various parts of the cane-growing world have been more frequent than in previous years, and improvements in the machinery of existing factories have been somewhat numerous. Noteworthy examples are the Antigua factory, "Belleisle" factory (Jamaica), "Tamunua" (Fiji), Toyo (Formosa), "Treinta," "Chinameca," and "Tilapa" (Mexico), additions to Cuban plants, re-arranging and additions to Argentine plants. There has been no retrogression. Competition with German and American manufacturers has been severe.

Materials

The first class makers of cane sugar machinery continue to use British materials. Second class makers are using German cast steel and German forgings on account of their lower price.

Effect of United States' Tariffs

1272 There is no home trade in the cane sugar industry, consequently there is no foreign competition at home. Cuba, Mexico, Java, Natal and the Argentine are the chief export markets. Porto Rico and Hawaiian Islands were very extensive markets, but are now closed owing to the prohibitive tariff of 45 per cent. Trade in Cuba tends to diminish owing to American controlled factories ordering American made machinery. In Mexico the trade is entirely with the better class of cane growers who have learned by experience the superior character of British machinery. This market remains about constant. Argentine tends to increase. Foreign competition, principally German, increases, principally in neutral markets.

Patents Act

The new Patents Act will not affect this particular industry.

WITNESS No. 319

MR. ROBERT HARVEY, M.I.Mech.E.

1273 (Chairman, HARVEY ENGINEERING CO., LTD., Scotland Street Engine Works, Glasgow; Sugar Machinery Manufacturers)

December, 1908.

Brussels Convention

For about twenty years before the Brussels Sugar Convention the sugar machinery industry in Great Britain was in a most depressed condition, and one or two firms had to make arrangements with their creditors. The most notable change took place when the Brussels Sugar Convention came into force about six years ago. The Brussels Sugar Convention was an agreement between the Governments of various Continental countries where beetroot sugar was produced, and the British Government, whereby it was agreed to reduce the excessive internal taxation on sugar and also to abolish all bounties and drawbacks on the exportation of beetroot sugar.

Germany

Previous to the Brussels Sugar Convention Germany was producing a large excess of sugar beyond her requirements, and the bulk of this sugar was exported to Britain, and sometimes so flooded the sugar market that prices dropped to about £6 per ton, being below the cost of production, which in Germany was £8 per ton; but this loss was recouped by the German beetroot sugar manufacturers owing to the very high price they obtained for their sugar in their own country and the bounties or drawbacks given

to them by their Government on all sugar they exported, and it was this unfair and ruinous price of 1274
beetroot sugar which depressed the cane sugar industry all over the world and thereby the sugar machinery manufacturers of this country, and ultimately brought the British West Indies to the verge of bankruptcy.

The Brussels Sugar Convention abolished Continental beetroot sugar trusts, also Government bounties and drawbacks on sugar, and thereby fair and free trade in sugar was accomplished, resulting in a great extension of the cane sugar industry in various parts of the world, which naturally necessitated additional sugar machinery. Furthermore the Brussels Sugar Convention gave more security for capital invested in the cane sugar industry, so that a large number of completely new and very extensive central cane sugar factories were erected in various parts of the world where cane sugar could be grown to advantage, which gave a further impetus to the cane sugar machinery industry in this country, and the cane sugar crop of the world is now as great as—if not greater than—the beet sugar crop of the world.

Subsequent Changes

Since the Brussels Sugar Convention very decided progress has been made in sugar machinery,
owing to improved conditions as above stated. The principal improvements consist in the almost complete
extraction of the juice from the cane by the introduction of nine-roller mills and crushers—that is,
crushing the cane under four successive and distinct operations, whereby about 95 per cent. of the total
juice in the cane is extracted, whereas in former years, by one mill instead of four, only about 60 per
cent. of the juice was extracted. The machinery for this extra extraction was so expensive that before
the Brussels Convention no planter could command the capital necessary for that purpose, but with the 1275
addition of this machinery, and also improved methods of manufacture, the cost of producing cane sugar
was very much reduced and thereby the industry placed in a paying condition, resulting in the extension
of a large number of cane sugar estates and the erection of complete new cane sugar factories in various
parts of the world.

Recent Retrogression

During the five years following the Brussels Sugar Convention sugar engineers in this country, owing to the above mentioned conditions, were fairly well employed, and the increased turnover left a fair profit where, in former years, the turnover was so small that the result was a loss. When the first term of the Brussels Sugar Convention was coming to a close, an agitation arose amongst Free Traders, who pointed out to the Government then in power that it was inconsistent with their policy of Free Trade to continue the Brussels Sugar Convention. The result of this objection was, a stoppage for the time being of all extension of the cane sugar industry and a number of extensions and improvements contemplated were immediately abandoned, the result being a retrogression of the cane sugar industry and a depression commenced which still continues, and the number of unemployed workmen at the present time is further supplemented by those from the sugar machinery industry.

Imports of German Steel

In the sugar machinery industry no foreign materials whatsoever are used, all being produced direct
in this country, and practically consist of iron and steel, with a small proportion of copper, and these are
produced as cheap in this country as in any part of the world. Within the last few years, owing to a
protective tariff on steel in Germany, the Germans have been to a certain extent successful in dumping 1276
over to this country steel forgings and steel shafts under the cost at which they can be produced here.
As a rule with one or two exceptions, the sugar engineers have refused to use this German steel, as the
conditions under which this steel is imported into this country are similar to the conditions on which beetroot
sugar was imported before the Brussels Convention, the said steel being sold at a much higher rate
in Germany than that offered to the English buyer.

Effect of United States' Policy

Foreign competition, with the assistance of protective duties, has during the last few years, decidedly diminished the sugar machinery industry in this country. In former years practically the whole of the sugar machinery used in the Island of Porto Rico and also in the Sandwich Islands was of British manufacture. America annexed the Sandwich Islands, and, a few years later, after the Spanish-American War, they annexed Porto Rico, making these islands American territory, and it is well known that the duty on machinery going into the United States is 45 per cent., therefore 45 per cent. duty was declared against British sugar machinery, and thereby the Americans captured the whole sugar machinery industry of these two cane-producing islands, and all the expense and the agencies which the British sugar engineers had established there, in addition to a splendid business, were captured by the Americans without one word of protest from the British Government, and it is difficult to calculate the loss this has entailed to shippers and merchants, iron and steel manufacturers, as well as sugar engineers.

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Philippines

Along with Porto Rico they also took over the control of the Philippine Islands. Here again, in former years, the British engineers had practically the monopoly of the machinery for these islands; that now has also gone into the hands of the Americans.

Cuba

The Island of Cuba, the finest and most productive for cane sugar in the whole of the West Indies, at one time bought the bulk of their sugar machinery from Britain, but now this also comes from America owing to reciprocal treaties between Cuba and America; also owing to the proximity of Cuba, a general influx of American capital has, during these last few years, been invested in Cuba in large new central sugar factories, the whole of which are of American manufacture, the British sugar engineers not being allowed to compete for such work, and there is every likelihood of Cuba shortly becoming American territory, whereby the 45 per cent. duty against British sugar machinery puts a stop to all future business as regards British sugar machinery in that island.

Competition in British and Foreign Colonies

In all our Colonies which produce cane sugar, we have to compete on the same terms as the French and German sugar engineers for the sugar machinery required for these Colonies, but in the case of sugar machinery required in France, Germany or their colonies, they have a protective duty against our importation of sugar machinery, thereby the foreigner has the whole of his home market without foreign competition, 1278 and in addition the open market of the world on the same conditions as the British sugar engineers—that is, the Continental sugar engineers can freely supply Britain and the British Colonies with sugar machinery, but erect a tariff barrier so as to prevent Britain exporting sugar machinery to them or to their Colonies.

Export Markets

The chief markets to which sugar machinery is exported are the tropical or semi-tropical, which are the only countries suitable for growing sugar cane, and the principal of these are the East and West Indies, the largest cane-producing countries being the island of Java in the East Indies and the island of Cuba in the West Indies. In the near future America will be supplied with all the sugar she requires from the cane-producing islands of Porto Rico, the Sandwich Islands and Cuba, to which must be added the southern cane sugar estates of Louisiana, and she now has a large number (which she is rapidly increasing) of central beet sugar factories, and to all these countries she practically supplies all the sugar machinery that is required.

British West Indies

The British West Indies were nearly extinguished and in a very depressed condition before the Brussels Convention and are now a very small portion of the cane sugar world, but the bulk of the sugar machinery used there is of British manufacture.

Peru and Brazil

Peru and Brazil are also large cane sugar producing countries, and the sugar machinery used there is practically bought from Britain or France, the latter country having the bulk of the orders owing to
1279 the preponderance of French capital in these countries.

Mauritius

Mauritius is a British possession, and one of the chief products is cane sugar, the machinery used being British and French, but here again the French predominates for financial reasons.

Egypt

Egypt is also a producer of cane sugar, but here again the machinery is practically all French, owing to the French in former years having been the predominating power there.

Natal

Natal in South Africa is rapidly increasing and extending her cane sugar factories, although she has still to import sugar to meet her home markets, and so far the greater bulk of the sugar machinery used in that Colony has been purchased from Britain.

Queensland

Queensland in Northern Australia is also a cane sugar producing country, and at one time a considerable business was done by the sugar engineers exporting sugar machinery to that quarter, but owing to alterations in the tariff arrangements with protection, a good deal of this machinery is now produced in the Colony.

India

British India produces a vast amount of cane sugar, but the bulk of that is done by the natives in a very crude manner. During recent years one or two sugar refineries and some small central sugar factories have been erected, equipped with modern machinery, but the growth of this business has been
1280 suddenly brought to a standstill owing to the unsettled state of the country, and the capital that has been ventured there is therefore in a very precarious condition.

Formosa and Japanese Competition

The most recent extension of the cane sugar industry has been in the Island of Formosa, which was acquired by Japan at the close of the war between China and Japan, and a number of large central cane sugar factories have been erected there, and so far the bulk of this machinery has been of British manufacture, but within the next few years this machinery will all be made in Japan—in fact the Japanese have already started making their own sugar machinery, just as they now build their own steamships and warships.

Patents Act

As I am not aware of any foreign patents on machinery now being used in the manufacture of cane sugar, the new Patents Act will have no effect whatsoever on the British sugar machinery industry.

General Remarks on the Industry

In bygone ages the principal, and in fact the only industries of the world were the agricultural industries, and Britain made the first serious departure from these conditions when, about one hundred years ago, the development of the steam engine and the iron industry, the introduction of railways and steam navigation brought about a complete revolution.

Effect of British and Foreign Policies

1281 During the first development of these industries Britain, being first in the field, commanded the market, and for many years was practically the workshop of the world, and thereby her agricultural interests were greatly reduced, but this was more than balanced by the extraordinary prosperity in her manufactures, the exportation of which added immensely to her industrial wealth, and this continued until other countries, taking Britain as a model, gradually educated themselves on the same lines and developed their own iron and engineering industries, so that instead of purchasing from Britain they now supply themselves, and thereby fiscal conditions are completely altered from former years. In no country have the agricultural industries suffered and become diminished to such an extent as in Great Britain; all other countries have more or less protected or fostered their agricultural industries, and in the case of Germany, France, Italy, Japan and America, added to these their new industries of iron and steel manufactures also all branches of engineering and shipbuilding. One notable example of this is to be found in Germany, where beetroot growing and beetroot sugar manufacture now is a most important and valuable industry, whereby a large proportion of the people are employed upon the land, also in sugar factories on that land, and thereby the great inflow of the population to the main cities of Germany is prevented to a greater extent than in Britain. The erection of these numerous beetroot sugar factories all over Germany and a great part of France and Austria has given profitable employment for a number of years to the sugar engineers in those countries, and, previous to the Brussels Convention, a great proportion of this Continental beetroot sugar was exported, and is still exported, to Great Britain.

Beet Sugar Cultivation in Ireland and England

1282 For a number of years experiments have been made in the South of Ireland and in England as to the possibility of cultivating beetroots with the view of making beetroot sugar in Britain. These experiments have been most successful, and from the analysis of the beet grown in Britain it has been found to be equal to, and in some cases containing a greater proportion of sugar than, the German beetroot—a proof that the soil and the climatic conditions are quite as good in certain parts of Britain for the cultivation of beetroots as in Germany.

About two years ago a scheme was proposed for the erection of a small beetroot factory in England, but the necessary capital could not be secured owing to the uncertainty of this country as regards the tariff and fiscal question, because, should the Brussels Sugar Convention be abandoned and the former conditions restored as to bounties and cartels such a factory erected in Britain would only be the value of scrap iron; and it is this uncertainty as to the security of capital in any manufacture which deters capitalists from the investment in same, and all owing to the uncertainty as to fiscal conditions, which are at the present time those of Free Trade, which is considered freedom to buy but no freedom to sell.

"Legitimate" Protection

1283 As one instance of what might be called *legitimate* protection the sugar industry might be taken as an example. Suppose a slight duty were imposed on all Continental sugars this would naturally raise the price of sugar in this country, but such a duty would be limited in amount so that the price for sugar with the duty included would never be in excess of the price of sugar in any Continental market, and to such an arrangement none of the trades using sugar have any legitimate cause for objection, as they would always be able to purchase their sugar as cheap as any other user of sugar in any part of the world. By this means there would be security and profit for money invested in the cultivation and manufacture of beetroot sugar in Britain, and the result would be a demand for a great number of people to cultivate the land, also extra people would be required to manufacture the sugar, and the money now expended in purchasing Continental beetroot sugar would be used for the cultivation and manufacture of the same sugar in our own country by our own people. British Colonial sugar might be allowed to come in free, and thereby give a great impetus to the cane sugar industry in the West Indies and in other tropical colonies of Great Britain, and for this privilege no doubt some equal advantage could be arranged for British exports going into these colonies as against foreign exports, and thereby a great impetus would be given to the employment of British capital and British labour.

This is merely an outline of what might be accomplished in the sugar industry as regards England, her Colonies and Continental nations, and no doubt other industries, if examined, might be found to be in the same condition and to be treated in a much similar manner.

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SECTION VI.—STATISTICAL TABLES

1286 **Table 16**

TABLE 16.—UNITED KINGDOM. TOTAL IMPORTS OF MACHINERY AND MILL WORK OR PARTS THEREOF* (in thousand £)

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Sweden	74	47	77	115	125	103	113	87	81	88	104
Denmark	33	27	19	30	33	46	66	57	62	71	71
Germany	303	334	379	411	542	763	772	739	736	780	906
Holland	85	132	157	166	246	252	265	332	308	300	333
Belgium	88	124	137	200	255	313	316	382	428	396	378
France	119	192	155	156	187	223	195	200	192	164	190
U.S.A.	1620	2153	2702	2366	2495	2984	2599	2403	2623	3204	3117
Other Foreign Countries ..	16	9	19	18	11	12	13	21	16	21	98
Total from Foreign Countries	**2338**	**3018**	**3645**	**3462**	**3894**	**4696**	**4339**	**4221**	**4446**	**5024**	**5197**
Canada	30	34	25	11	67	62	98	87	88	89	105
Other British Possessions ..	3	4	2	3	2	3	13	5	4	14	10
Total from British Possessions	**33**	**38**	**27**	**14**	**69**	**65**	**111**	**92**	**92**	**103**	**115**
Total from all Countries ..	**2371**	**3056**	**3673**	**3476**	**3963**	**4761**	**4450**	**4312**	**4538**	**5127**	**5312**

* The figures in this table include all kinds of machinery imported into the United Kingdom. Implements and tools are not included in the above, and are given separately in Table 22. Sewing machines are given separately in Table 18, for all years since 1882.

1287 **Table 17**

TABLE 17.—UNITED KINGDOM. IMPORTS OF MACHINERY AND MILL WORK OR PARTS THEREOF (in thousand £)

	(a) Not being Steam Engines, Total						
	1901	1902	1903	1904	1905	1906	1907
Sweden	105	81	99	81	77	87	101
Denmark	30	39	50	46	51	65	63
Germany	527	745	749	685	685	757	883
Holland	199	219	228	292	270	284	382
Belgium	231	289	296	359	384	374	366
France	168	203	183	183	181	161	186
United States	2131	2610	2286	2161	2528	3185	3083
Other Foreign Countries..	15	11	20	19	12	19	45
Total from Foreign Countries ..	**3406**	**4197**	**3911**	**3826**	**4188**	**4932**	**5109**
Canada	65	58	96	85	83	82	105
Other British Possessions	3	5	14	7	8	21	9
Total from British Possessions ..	**68**	**63**	**110**	**92**	**91**	**103**	**114**
Total from all Countries.. ..	**3474**	**4260**	**4021**	**3917**	**4279**	**5035**	**5223**

	(b) Steam Engines, Total						
	1901	1902	1903	1904	1905	1906	1907
Germany	18	18	24	54	51	24	23
Holland	39	26	37	36	36	16	7
United States	363	374	313	243	95	19	34
Other Countries	69	83	55	62	77	33	25
Total to all Countries	**489**	**501**	**429**	**395**	**259**	**92**	**89**

TABLE 18.—UNITED KINGDOM. AVERAGE ANNUAL IMPORTS OF SEWING MACHINES (in thousand £)

Table 18 1288

	1882–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Germany	58	69	83	125	138	102	93	77
Holland	39	38	33	40	33	36	32	38
United States	165	117	107	112	164	192	458	362
Other Foreign Countries	—	9	4	4	17	6	8	9
Total from Foreign Countries ..	—	**233**	**227**	**281**	**352**	**336**	**591**	**486**
Total from British Possessions ..	—	**3**	**2**	**1**	**0**	**1**	**0**	**0**
Total from all Countries	**288**	**236**	**229**	**282**	**352**	**337**	**591**	**486**

TABLE 19.—UNITED KINGDOM. IMPORTS OF MACHINERY AND MILL WORK OR PARTS THEREOF (NOT BEING STEAM ENGINES) (in thousand £)

Table 19 1289

	(a) Agricultural						
	1901	1902	1903	1904	1905	1906	1907
Sweden	48	38	69	66	58	57	70
Denmark	14	20	22	24	13	15	19
Belgium	16	16	29	31	31	21	31
United States	225	269	258	293	548	578	565
Other Foreign Countries	11	10	16	31	23	13	14
Total from Foreign Countries ..	**314**	**353**	**394**	**445**	**673**	**684**	**699**
Canada	55	43	65	54	30	46	68
Other British Possessions	—	2	9	—	2	12	3
Total from British Possessions ..	**55**	**45**	**74**	**54**	**32**	**58**	**71**
Total from all Countries	**369**	**397**	**468**	**499**	**705**	**741**	**770**
	(b) Textile						
Germany	43	48	121	130	71	57	70
United States	19	32	55	29	28	64	82
Other Countries	50	39	59	33	44	47	77
Total from all Countries	**112**	**119**	**235**	**192**	**143**	**168**	**229**
	(c) Mining						
United States	38	20	23	19	41	60	57
Other Countries	8	7	31	10	21	7	24
Total from all Countries	**46**	**27**	**54**	**29**	**62**	**67**	**81**

1290 **Table 20**

TABLE 20.—UNITED KINGDOM. IMPORTS OF ELECTRICAL MACHINERY OF ALL KINDS (in thousand £)

	1903	1904	1905	1906	1907
Germany	120	61	102	138	228
Holland	23	39	41	30	58
Belgium	54	113	95	85	73
France	37	37	31	35	35
United States	306	290	203	259	186
Other Countries	15	19	25	24	23
Total from all Countries	**555**	**559**	**497**	**571**	**603**

1291 **Table 21**

TABLE 21.—UNITED KINGDOM. IMPORTS OF ELECTRICAL GOODS AND APPARATUS (in thousand £)

	1900	1901	1902	1903	1904	1905	1906	1907
Sweden	9	18	13	115	107	122	133	97
Germany	87	74	82	123	147	213	235	326
Holland	115	149	163	200	185	195	240	292
Belgium	77	87	105	141	145	177	320	269
France	140	124	160	159	147	183	173	186
U.S.A.	833	388	160	130	104	113	79	70
Other Foreign Countries	3	6	4	8	9	6	7	8
Total from Foreign Countries	**1,264**	**846**	**687**	**876**	**844**	**1,009**	**1,187**	**1,248**
Total from British Possessions	**2**	**3**	**0**	**1**	**2**	**1**	**1**	—
Total from All Countries	**1,266**	**849**	**688**	**876**	**846**	**1,010**	**1,188**	**1,248**

1292 **Table 22**

TABLE 22.—UNITED KINGDOM. IMPORTS OF IMPLEMENTS AND TOOLS (in thousand £)

	1900	1901	1902	1903	1904	1905	1906	1907
Holland	22	39	41	45	57	64	75	79
United States	364	344	305	509	459	228	208	263
Other Foreign Countries	27	29	28	33	28	37	40	48
Total from Foreign Countries	**413**	**412**	**374**	**587**	**544**	**329**	**323**	**390**
Total from British Possessions	**5**	**4**	**7**	**9**	**4**	**10**	**7**	**10**
Total from all Countries	**418**	**415**	**381**	**596**	**548**	**339**	**330**	**400**

1293 **Table 23**

TABLE 23.—UNITED KINGDOM. IMPORTS OF MOTOR CARS AND PARTS THEREOF (in thousand £)

	Imports				Consignments			
	1904	1905	1906	1907	1904	1905	1906	1907
Germany	65	226	404	499	209	441	669	725
Holland	35	58	70	65	17	39	57	45
Belgium	220	361	596	667	78	135	279	271
France	1961	2571	3088	3106	1940	2565	3059	3084
U.S.A.	136	147	210	204	137	147	210	203
Other Countries	7	5	3	12	43	40	97	225
Total	**2424**	**3367**	**4371**	**4553**	**2424**	**3367**	**4371**	**4553**

TABLE 24.—UNITED KINGDOM. IMPORTS OF CYCLES AND PARTS (INCLUDING MOTOR CYCLES) (in thousand £)

Table 24 1294

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Germany	10	14	14	8	8	9*	15*	17	24	35	30
Holland	5	12	9	11	13	14*	15*	22	48	58	71
Belgium	9	13	8	8	11	5*	5*	54	71	73	61
France	40	27	26	28	25	8*	12*	25	31	40	49
U.S.A.	459	544	224	137	118	104*	50*	12*	35*	33*	36*
Total Foreign Countries ..	**524**	**611**	**285**	**194**	**175**	**141***	**99***	**131**	**210**	**239**	**249**
Total British Possessions ..	**3**	**1**	**2**	**1**	**2**	**3***	—	—	—	—	**1**
Total All Countries ..	**527**	**613**	**287**	**195**	**176**	**145***	**99***	**131**	**210**	**239**	**250**

* Excluding Motor Cycles and parts thereof.

TABLE 25.—UNITED KINGDOM. IMPORTS OF CYCLES OF ALL KINDS AND PARTS THEREOF (in thousand £)

Table 25 1295

	Imports						Consignments			
	1902	1903	1904	1905	1906	1907	1904	1905	1906	1907
(A) Cycles (other than Motor Cycles)										
Germany	2	2	2	1	1	1	4	4	2	2
France	5	4	4	2	1	1	3	2	1	1
United States	68	19	2	4	1	—	2	4	1	—
Other Countries	8	4	4	7	5	3	3	4	4	2
Total	**83**	**29**	**12**	**14**	**8**	**5**	**12**	**14**	**8**	**5**
(B) Parts thereof										
Germany	7	14	15	18	29	27	33	52	64	68
Holland	11	13	16	33	37	45	2	3	5	6
Belgium	3	4	18	15	18	14	14	10	16	12
France	4	8	11	20	34	44	11	18	21	25
United States	35	31	10	31	31	35	10	31	31	35
Total	**61**	**70**	**70**	**117**	**150**	**166**	**70**	**117**	**150***	**166†**
(C) Motor Cycles										
Germany	Included in "Motor Cars."		—	1	2	1	6	19	17	20
Holland			1	10	14	19	—	1	1	2
Belgium			19	36	31	27	14	27	28	25
France			10	8	4	3	10	8	4	3
Total			**31**	**56**	**50**	**51**	**31**	**56**	**50**	**51**
(D) Parts thereof										
Germany	Included in "Motor Cars, Partsthereof."		—	4	3	1	5	11	13	11
Holland			2	2	4	6	—	—	—	1
Belgium			15	17	22	20	11	11	17	15
Total			**17**	**24**	**30**	**28**	**17**	**24**	**30**	**28**

* Including consignments from Switzerland, £13,000. † Including consignments from Switzerland, £19,000.

Table 26

TABLE 26.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF MACHINERY AND MILL WORK OR PARTS THEREOF OF ALL KINDS (in thousand £)

	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	1,041	1,256	901	1,465	2,442	2,103	1,791	1,612	2,230
Norway	51	60	62	103	132	130	149	144	253
Sweden	189	124	146	173	281	227	213	228	299
Denmark	49	65	54	96	116	110	97	151	203
Germany	861	1,332	1,404	1,582	1,896	1,683	2,103	2,148	2,366
Holland	327	398	399	507	542	531	462	629	591
Belgium	290	518	610	757	770	736	761	816	1,156
France	623	999	841	1,186	1,319	1,482	1,399	1,846	2,065
Spain	356	482	428	578	401	563	486	469	514
Portugal	111	76	123	137	138	159	173	199	198
Portuguese East Africa	—	—	8	21	88	131	351	292	372
Italy	344	545	653	461	533	746	1,114	1,559	1,795
Austria-Hungary ..	26	56	116	118	231	251	167	230	366
Greece	18	23	21	35	32	50	53	55	68
Turkey*	42†	58	77	113	87	133	165	176	188
Roumania	33	32	19	45	54	44	114	102	99
Egypt	90	175	135	134	227	419	551	673	732
Chile	55	73	93	193	126	187	372	600	804
Peru	51	44	45	47	45	66	74	82	82
Mexico	41	126	102	199	274	253	216	279	367
Brazil	206	435	453	776	464	376	549	630	969
Argentine	58	206	610	575	359	623	1,611	2,872	2,458
Uruguay	18	38	59	67	36	41	163	127	161
China	44	58	69	129	258	151	437	456	454
Japan	40	51	234	367	752	555	1,121	1,042	1,828
United States ..	189	484	570	693	446	656	763	766	765
Other Foreign Countries	—	—	350	559	423	478	915	722	961
Total to Foreign Countries ..	—	—	**8,582**	**11,116**	**12,472**	**12,884**	**16,370**	**18,905**	**22,344**
South Africa (Cape and Natal)	152	248	285	520	965	1,436	1,135	959	920
British India	1,008	1,437	1,761	1,862	2,352	2,553	3,812	4,469	5,364
Australasia	601	1,120	1,033	815	951	1,604	1,064	1,398	1,805
Canada	47	156	75	93	95	199	182	216	327
Other British Possessions	—	—	376	441	457	786	697	825	983
Total to British Possessions ..	—	—	**3,530**	**3,731**	**4,820**	**6,578**	**6,890**	**7,867**	**9,399**
Total to all Countries	**7,554**	**11,532**	**12,113**	**14,848**	**17,293**	**19,462**	**23,260**	**26,772**	**31,743**

* Including Cyprus.

† Including Bulgaria and Servia.

TABLE 27.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF MACHINERY AND MILL WORK, OR PARTS THEREOF, NOT BEING STEAM ENGINES (in thousand £)

	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	848	1,046	767	1,132	2,100	1,798	1,578	1,417	2,030
Sweden	111	99	117	156	246	202	196	214	258
Norway	34	47	49	74	110	102	118	103	201
Denmark*	33	43	40	66	86	82	79	120	176
Germany	682	1,006	1,219	1,327	1,659	1,425	1,703	1,715	1,998
Holland	218	269	339	372	451	372	370	460	490
Dutch Possessions (Java)	44	55	44	102	63	99	116	107	118
Belgium	255	443	552	708	709	678	682	742	1,054
France	569	776	754	1,100	1,221	1,413	1,349	1,750	1,982
Portugal	76	50	95	109	123	135	143	151	160
Portuguese East Africa ..	—	—	—	12	59	77	285	207	293
Spain	250	302	273	438	299	445	368	350	326
Italy	216	306	429	382	471	628	899	1,259	1,512
Austria-Hungary	19	45	81	88	172	217	154	214	339
Turkey†	23	34	45	73	75	115	136	131	161
Egypt	64	98	64	75	108	215	270	347	421
China	27	38	44	94	236	113	338	315	318
Japan	20	31	147	271	564	383	666	826	1,415
United States	176	428	517	646	433	618	733	742	734
Philippine Islands and Guam‡	35	58	20	36	17	26	148	57	22
Cuba§	29	76	42	61	22	29	111	97	136
Mexico	20	84	74	140	229	190	164	241	324
Chile	26	42	38	81	74	124	225	347	420
Brazil	123	262	238	518	347	287	395	458	790
Uruguay	—	11	26	30	15	15	22	48	44
Argentine	28	92	245	236	193	340	625	1,073	822
Other Foreign Countries ..	—	—	169	260	310	392	531	541	647
Total to Foreign Countries	—	—	**6,438**	**8,587**	**10,392**	**10,520**	**12,404**	**14,032**	**17,191**
Cape	70	122	198	344	633	559	445	410	398
Natal					129	272	437	392	361
British India	626	850	1,119	1,408	1,731	1,750	2,688	3,259	3,621
Straits Settlements ..	17	26	39	42	57	102	89	74	111
Hong Kong	4	18	29	49	46	64	48	60	109
Australia	261	579	571	437	529	724	576	713	1,022
New Zealand	82	113	96	82	137	270	264	286	353
Canada	44	120	64	82	86	136	152	148	229
British West Indies ..	46	68	57	72	44	57	69	85	104
Other British Possessions	—	—	139	159	188	326	294	451	345
Total to British Possessions	—	—	**2,312**	**2,675**	**3,580**	**4,260**	**5,062**	**5,878**	**6,653**
Total to all Countries ..	**5,315**	**7,936**	**8,751**	**11,263**	**13,973**	**14,780**	**17,466**	**19,910**	**23,844**

* Prior to 1901 Iceland and Greenland are included.

† Crete is included throughout, Cyprus prior to 1900, and Montenegro, Bulgaria and Servia prior to 1881.

‡ Included the other Ladrone Islands prior to 1905.

§ Spanish West Indies prior to 1900.

1298 **Table 28**

TABLE 28.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF MACHINERY AND MILL WORK OR PARTS THEREOF, BEING STEAM ENGINES (in thousand £)

	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	191	208	133	331	342	305	213	192	198
Sweden and Norway ..	91	34	37	40	42	43	39	49	79
Holland and Belgium ..	133	197	109	180	152	216	169	242	203
Germany	177	320	179	247	235	257	399	433	364
France..	48	223	88	86	98	69	50	96	83
Spain, Portugal, and Portuguese East Africa and India	127	202	181	172	141	183	278	245	352
Italy	126	239	224	80	62	118	215	300	284
Egypt	20	74	71	59	120	204	281	326	312
China and Japan	16	34	106	127	202	204	544	331	531
Chile, Peru, and Mexico ..	33	76	88	177	95	124	223	305	446
Brazil	83	173	215	258	118	87	148	158	166
Argentine and Uruguay ..	17	123	389	373	183	295	1,097	1,827	1,690
Other Foreign Countries ..	—	—	324	398	290	260	310	369	445
Total to Foreign Countries	—	—	**2,144**	**2,528**	**2,080**	**2,365**	**3,966**	**4,873**	**5,153**
South Africa	75	118	83	174	204	605	253	157	161
British East Indies	384	613	676	499	678	895	1,177	1,254	1,851
Australasia	258	427	367	296	283	595	223	355	405
Other British Possessions ..	—	—	92	87	74	222	175	223	329
Total to British Possessions	—	—	**1,218**	**1,056**	**1,239**	**2,317**	**1,828**	**1,989**	**2,746**
Total to all Countries ..	**2,239**	**3,597**	**3,362**	**3,585**	**3,319**	**4,682**	**5,795**	**6,862**	**7,900**

1299 **Table 29**

TABLE 29.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF AGRICULTURAL MACHINERY, INCLUDING "STEAM ENGINES" AND "NOT STEAM ENGINES,"* (in thousand £)

	1882–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	284	117	224	250	374	307	217	252
Germany	528	259	408	325	342	563	634	501
Belgium and Holland	109	65	86	87	90	61	58	80
France	121	96	130	136	132	99	152	143
Italy	47	37	54	54	66	89	110	114
Egypt	31	10	26	32	74	103	108	73
Brazil	80	48	61	38	10	4	8	12
Argentine and Uruguay ..	72	103	228	86	156	454†	400	240
Other Foreign Countries ..	—	143	236	243	200	302	396	478
Total to Foreign Countries	—	**878**	**1,453**	**1,251**	**1,444**	**1,982**	**2,083**	**1,893**
South Africa	16	11	28	33	55	41	35	43
British East Indies	22	38	38	40	26	23‡	36	38
Australasia	208	133	112	82	109	76	108	121
Other British Possessions ..	—	8	7	10	25	24	46	60
Total to British Possessions	—	**190**	**185**	**165**	**215**	**164**	**225**	**262**
Total to all Countries ..	**1,803**	**1,069**	**1,639**	**1,416**	**1,659**	**2,146**	**2,307**	**2,155**

* For separate totals see other tables.
† Argentine only in this and succeeding years.
‡ British India in this and succeeding years.

TABLE 30.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF AGRICULTURAL STEAM ENGINES (in thousand £)

Table 30 1300

	1882–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	141	60	122	148	213	166	125	133
Germany	299	132	173	119	182	324	356	270
Belgium and Holland ..	65	34	44	38	29	17	13	23
France	51	22	29	33	16	7	18	20
Italy	31	25	32	30	37	44	51	68
Egypt	27	10	17	19	56	81	88	54
Chile	21	15	28	8	8	57	91	91
Brazil	44	37	30	21	1	—	—	—
Argentine and Uruguay ..	51	58	128	33	51	248*	168	66
Other Foreign Countries ..	—	62	108	124	79	78	112	170
Total to Foreign Countries	—	**455**	**711**	**573**	**672**	**1022**	**1022**	**895**
British East Indies	16	23	20	27	12	11†	21	14
Australasia	98	59	57	21	50	41	61	59
Other British Possessions ..	—	10	13	12	29	25	31	54
Total to British Possessions	—	**92**	**90**	**60**	**91**	**77**	**113**	**127**
Total to all Countries ..	**977**	**547**	**801**	**632**	**763**	**1099**	**1136**	**1022**

TABLE 31.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF AGRICULTURAL MACHINERY (NOT BEING STEAM ENGINES) (in thousand £)

Table 31 1301

	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	80	146	57	103	102	161	141	93	118
Germany	145	209	127	236	206	160	239	279	230
Belgium and Holland	7	28	31	43	49	61	44	45	57
France	72	71	74	101	103	116	93	135	123
Italy	28	24	12	21	23	28	45	59	46
Brazil	14	40	12	31	17	9	4	8	12
Argentine and Uruguay	2	24	45	101	53	105	206*	232	174
Other Foreign Countries	—	—	65	107	125	132	188	209	238
Total to Foreign Countries ..	—	—	**423**	**743**	**678**	**772**	**960**	**1060**	**998**
South Africa	2	12	6	17	24	39	29	27	28
Australasia	69	91	74	55	61	60	35	46	62
Other British Possessions	—	—	18	23	21	25	23	38	45
Total to British Possessions ..	—	—	**98**	**95**	**106**	**124**	**87**	**111**	**135**
Total to all Countries	**553**	**786**	**522**	**838**	**784**	**896**	**1047**	**1171**	**1133**

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* Argentine only in this and subsequent years.

† British India, 1905 and subsequently.

1302 **Table 32**

TABLE 32.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF LOCOMOTIVES
(in thousand £)

	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Holland and Belgium	31	58	18	55	46	83	14*	63	—
Spain	50	49	50	60	30	43	47	37	104
Italy	28	20	33	23	6	4	8	82	13
Egypt	—	13	22	5	39	57	98	67	79
Japan	7	7	34	72	130	105	324	45	25
Brazil	20	42	46	88	46	42	73	72	64
Argentine	15	49	215	179	111	174	612	1389	1379
Other Foreign Countries	—	—	179	219	131	144	329	331	374
Total to Foreign Countries ..	—	—	**597**	**701**	**539**	**652**	**1497**	**2004**	**2038**
British South Africa	41	56	21	85	64	383	65	38	21
British East Indies ..	196	359	364	246	388	579	765	766	1260
Australia	141	168	180	162	151	286	23	33	52
Other British Possessions	—	—	24	14	25	99	35	54	62
Total to British Possessions ..	—	—	**589**	**507**	**628**	**1347**	**888**	**891**	**1395**
Total to all Countries	**713**	**1085**	**1186**	**1208**	**1166**	**1999**	**2385**	**2895**	**3433**

* Holland only, 1905 and subsequently.

1303 **Table 33**

TABLE 33.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF SEWING MACHINES
(in thousand £)

	1882–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	44	55	77	207	636	731	589	735
Sweden and Norway	12	15	26	41	51	48	49	58
Germany	44	116	113	165	162	209	142	161
Belgium and Holland	28	32	56	82	84	94	73	72
France and Algeria	69	78	161	198	258	257	185	208
Portugal	4	11	20	20	30	30	25	18
Spain	40	36	86	37	106	84	57	63
Italy	29	27	62	85	122	104	67	102
Austria	9	11	23	53	105	79	88	71
Roumania, Turkey, &c. ..	—	—	22	39	70	61	57	58
Brazil	17	14	27	22	21	28	19	24
Other Foreign Countries	—	33	26	49	88	138	121	144
Total to Foreign Countries	—	**428**	**699**	**998**	**1733**	**1863**	**1472**	**1714**
South Africa	—	9	14	22	35	37	32	26
British East Indies	4	12	22	28	42	44†	50	62
Australasia	54	18	7	6	4	4	5	7
Other British Possessions ..	—	5	8	7	16	20	18	22
Total to British Possessions	—	**44**	**51**	**63**	**97**	**105**	**105**	**117**
Total to all Countries ..	**419**	**471**	**750**	**1061**	**1830**	**1968**	**1577**	**1831**

† British India in this and subsequent years.

TABLE 34.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF MINING MACHINERY OR PARTS THEREOF (NOT BEING STEAM ENGINES OR ELECTRICAL MACHINERY) Table 34 1304

(in thousand £)

	1893–4	1895–9	1900–4	1905	1906	1907
Spain	14	23	36	18	26	19
Portuguese East Africa	5	28	30	196	120	184
Other Foreign Countries	77	80	104	158	129	188
Total to Foreign Countries ..	**96**	**131**	**170**	**372**	**275**	**391**
South Africa	231	450	214	279	247	250
British East Indies	56	66	67	38*	61	69
Australasia	9	156	123	98	90	105
Other British Possessions	6	13	81	45	60	61
Total British Possessions ..	**302**	**685**	**485**	**460**	**458**	**485**
Total to all Countries ..	**398**	**816**	**655**	**833**	**733**	**875**

TABLE 35.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF TEXTILE MACHINERY AND MILL WORK OR PARTS THEREOF (NOT BEING STEAM ENGINES) (in thousand £) Table 35 1305

	1893–4	1895–9	1900–4	1905	1906	1907
Russia	746	1098	544	278	251	381
Sweden, Norway, and Denmark ..	66	86	48	56	66	104
Germany	749	937	730	963	861	1059
Holland and Belgium	723	640	509	580	602	768
France	536	654	653	530	706	865
Portugal	37	77	61	50	65	59
Spain	173	129	141	121	110	85
Italy	221	258	336	481	727	848
Austria	34	66	57	38	73	164
China	53	160	18	20	100	94
Japan	332	348	118	228	259	470
United States	348	366	508	411	597	584
Mexico	40	162	103	91	118	149
Brazil	302	141	130	133	168	352
Other Foreign Countries	95	117	124	137	181	150
Total to Foreign Countries ..	**4455**	**5239**	**4080**	**4117**	**4884**	**6132**
British East Indies	857	1071	823	1402*	1714	1782
Canada	43	49	70	52	43	64
Other British Possessions	12	47	63	36	69	60
Total to British Possessions	**912**	**1167**	**956**	**1490**	**1826**	**1906**
Total to all Countries ..	**5367**	**6406**	**5036**	**5606**	**6710**	**8038**

*British India, 1905 and subsequently.

1306 **Table 36**

TABLE 36.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF ELECTRICAL MACHINERY OF ALL KINDS, OR PARTS THEREOF (in thousand £)

	1903	1904	1905	1906	1907
Japan	39	59	73	125	129
Argentine	48	38	52	97	61
Other Foreign Countries	75	111	157	219	379
Total to Foreign Countries ..	**162**	**208**	**282**	**441**	**569**
South Africa	74	95	113	84	67
British East Indies	106	105	142	154	171
Australasia	73	81.	81	91	139
Other British Possessions	22	34	27	72	50
Total to British Possessions	**275**	**315**	**363**	**401**	**427**
Total to all Countries ..	**437**	**523**	**644**	**842**	**996**

1307 **Table 37**

TABLE 37.—UNITED KINGDOM. EXPORTS OF ELECTRICAL PRODUCTS OTHER THAN MACHINERY (in thousand £)

	1886–9*	1890–4*	1895–9*	1900–2*	1903†	1904†	1905†	1906†	1907†
Russia	8	20	47	18	23	23	44	64	10
Germany	27	68	48	39	50	13	16	6	31
Holland and Belgium	13	20	47	32	28	18	24	19	24
France..	25	18	28	8	10	10	13	5	7
Spain	19	31	60	9	0	6	7	—	—
Portugal and Portuguese Possessions ..	68	49	21	484	54	38	30	417	31
Egypt	22	16	77	27	30	23	31	31	34
Japan	17	16	74	152	48	98	329	142	146
U.S.A.]	23	13	17	315	74	217	161	63	416
Peru	5	74	2	11	18	8	5	17	38
Chile	5	15	7	9	12	11	190	17	35
Brazil	18	77	90	170	47	70	63	110	94
Argentine Republic ..	37	26	48	56	51	39	79	194	132
Other Foreign Countries	263	258	117	329	1,114‡	199	183	526§	281
Total Foreign Countries	**550**	**701**	**683**	**1,659**	**1,559**	**773**	**1,175**	**1,611**	**1,279**
South Africa	96‖	64	227	216	301	303	262	180	459
British East Indies ..	45	138	152	205	258	168	195	202	244
Australasia	76‖	119	154	518	247	203	179	229	293
Canada	107	229	77	392	11	53	434	35	56
Other British Possessions	—	259	152	511	110	107	187	126	139
Total British Possessions	**434**	**809**	**762**	**1,842**	**927**	**834**	**1,257**	**772**	**1,191**
Total, All Countries ..	**984**	**1,510**	**1,445**	**3,501**	**2,486**	**1,607**	**2,432**	**2,382**	**2,470**

* Telegraphic Wires and Apparatus and Electric Lighting Apparatus or Parts (except Steam Engines).

† Including some Electrical Goods and Apparatus not included previously, but excluding Telegraph Wires.

‡ Includes Telegraph Cables and Apparatus to the value of £897,000 to Islands in the Pacific, and £111,000 to Dutch East Indies.

§ Includes Telegraph and Telephone Cables and Apparatus to the value of £262,000 to Philippine Islands and Guam.

‖ Average for the three years 1887–9.

TABLE 38.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF AGRICULTURAL IMPLEMENTS AND TOOLS AND PARTS THEREOF (in thousand £)

Table 38 1308

	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Brazil	9	23	50	69	73	83	104	120	133
Argentine	1	7	17	25	16	33	33	40	40
Other Foreign Countries	—	—	116	148	147	127	125	136	123
Total to Foreign Countries ..	—	—	**183**	**242**	**236**	**243**	**262**	**296**	**296**
British South Africa	29	33	28	50	42	56	33	31	34
British East Indies ..	—	9	37	43	51	48	60	78	82
Australasia	77	82	62	57	50	41	42	48	53
Other British Possessions	—	—	16	24	23	32	41	39	22
Total to British Possessions ..	—	—	**143**	**174**	**166**	**177**	**166**	**179**	**191**
Total to all Countries	**295**	**324**	**326**	**416**	**402**	**419**	**427**	**475**	**487**

TABLE 39.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF IMPLEMENTS AND TOOLS AND PARTS THEREOF, OTHER THAN AGRICULTURAL (in thousand £)

Table 39 1309

	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905	1906	1907
Russia	4	29	62	98	151	149	149	161	168
Germany	7	18	38	54	48	37	43	53	69
Holland	5	12	19	22	26	33	34	35	36
Belgium	4	10	21	23	25	21	27	32	37
France..	1	17	30	34	36	45	45	50	61
Spain	5	11	21	37	32	41	20	28	35
United States ..	—	10	16	31	19	29	30	38	39
Chile	—	6	12	25	19	27	40	53	68
Brazil	1	11	28	57	52	41	56	68	89
Argentine	—	9	33	25	30	43	89	131	107
Other Foreign Countries	—	—	102	133	149	192	328	371	397
Total to Foreign Countries ..	—	—	**382**	**539**	**587**	**658**	**881**	**1020**	**1106**
British South Africa..	12	17	27	58	75	111	88	78	64
British East Indies ..	8	34	79	95	122	164	191	228	228
Australasia	32	68	131	121	124	159	145	190	241
Other British Possessions	—	—	24	37	43	70	72	88	118
Total to British Possessions ..	—	—	**261**	**311**	**353**	**504**	**498**	**584**	**651**
Total to all Countries	**109**	**324**	**643**	**851**	**950**	**1162**	**1357**	**1604**	**1757**

1310 **Table 40**

TABLE 40.—UNITED KINGDOM. EXPORTS OF MOTOR CARS AND PARTS THEREOF (in thousand £)

	1904	1905	1906	1907
Germany	2	1	4	13
Holland	10	4	10	14
Belgium	13	5	16	27
France..	86	77	195	232
Italy	4	7	21	44
Egypt	2	6	8	8
U.S.A.	29	66	46	46
Argentine Republic	2	12	23	13
Other Foreign Countries	24	38	67	159
Total Foreign Countries	**171**	**215**	**390**	**556**
Cape of Good Hope	30	25	29	36
Natal	11	33	27	26
British India	46	114	139	243
Australia	32	57	101	192
New Zealand	15	21	62	123
Canada	—	—	11	6
Other British Possessions	16	37	59	141
Total British Possessions	**149**	**286**	**429**	**769**
Total	**321**	**502**	**818**	**1,325**

1311 **Table 41**

TABLE 41.—UNITED KINGDOM. AVERAGE ANNUAL EXPORTS OF CYCLES (EXCEPT MOTOR CYCLES) AND PARTS THEREOF (in thousand £)

	1892–6	1897—1901	1902–6	1907
Russia	74	40	21	23
Sweden and Norway	27	17	—	—
Denmark	67	26	22	43
Germany	83	46	19	14
Holland..	95	60	83	130
Belgium	125	38	29	43
France	264	83	88	111
Italy	30	15	22	48
Japan	2	1	40	183
U.S.A.	175	9	—	—
Other Foreign Countries	40	39	36	82
Total Foreign Countries	**982**	**374**	**360**	**677**
Cape of Good Hope	42	91	116	79
Natal		30	63	20
British India	26*	85	88	128
Australia	151	163	111	181
New Zealand	27	49	98	111
Canada	42†	5	—	—
Other British Possessions	9	35	41	92
Total British Possessions	**297**	**458**	**517**	**611**
Total all Countries..	**1,278**	**832**	**877**	**1,288**

* British East Indies. † British North America.

TABLE 42.—UNITED KINGDOM. EXPORTS OF SHIPS AND BOATS, NEW (NOT REGISTERED AS BRITISH), WITH THEIR MACHINERY (in thousand £)

	1899	1900	1901	1902	1903	1904	1905	1906	1907
Russia	605	316	246	499	381	83	136	65	164
Sweden	99	59	77	143	102	186	403	132	228
Norway	481	152	665	317	307	486	560	709	777
Denmark (including Faröe Is.)*	436	59	118	230	508	112	257	188	239
Germany	828	1,593	1,405	762	306	365	1,377	1,182	1,261
Holland	285	441	644	703	345	42	170	441	261
Belgium	292	105	1	7	24	139	65	163	22
France	132	267	311	176	170	338	77	483	745
Portugal	400	0	1	1	29	1	166	109	55
Spain	324	358	118	80	56	10	12	3	142
Italy	60	2	40	17	20	0	188	101	762
Austria-Hungary	456	1,014	818	666	323	408	245	206	889
Greece	—	—	166	355	217	143	36	75	235
Turkey (including Crete) ..	—	6	0	2	107	431	33	10	42
Egypt	47	8	9	48	54	83	99	159	143
China (excluding Hong Kong and Macao)	660	6	16	0	7	59	32	4	84
Japan	3,413	2,598	3,367	252	56	0	0	2,800	197
U.S.A.	0	220	115	1	133	70	51	0	118
Mexico	11	30	71	0	1	2	57	24	11
Peru	—	—	—	—	12	17	39	26	533
Chile	120	160	393	199	6	—	48	283	125
Brazil	97	263	55	1	33	114	157	233	615
Uruguay	2	0	—	47	28	43	8	24	53
Argentine Republic	—	—	—	2	25	71	195	306	358
Other Foreign Countries ..	72	98	58	39	67	64	57	175	113
Total Foreign Countries ..	**8,820**	**7,755**	**8,694**	**4,547**	**3,317**	**3,267**	**4,468**	**7,901**	**8,172**
Cape of Good Hope	13	36	16	62	94	34	1	1	0
Natal	0	1	2	143	113	9	84	0	0
British India	90	288	77	124	72	367	154	122	651
Straits Settlements	—	0	4	46	42	24	3	31	66
Hong Kong	32	49	1	10	—	0	—	—	—
Australia	124	268	182	534	145	275	208	164	506
New Zealand	18	43	38	142	248	155	257	125	257
Canada	38	9	76	174	164	162	172	198	253
Newfoundland and Coast of Labrador	27	108	—	3	—	47	—	29	—
Other British Possessions ..	35	30	59	87	88	115	84	73	112
Total British Possessions ..	**377**	**832**	**455**	**1,325**	**966**	**1,188**	**963**	**743**	**1,845**
Total to all Countries ..	**9,197**	**8,588**	**9,149**	**5,872**	**4,284**	**4,455**	**5,431**	**8,644**	**10,018**

* Included Iceland and Greenland also prior to 1901.

TABLE 43.—GERMANY. IMPORTS OF ENGINEERING PRODUCTS (in thousand £)

	From all Countries																
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Locomotives, Locomobiles, and other Motor Vehicles*	170	227	89	121	80	81	121	190	229	217	183	274	353	471	795	1094	
Sewing Machines and Parts	137	122	142	137	248	169	285	295	311	409	345	318	482	581	544	422	
Other Machinery† ..	1314	1017	1126	1158	1215	1664	1919	2303	2914	4430	2686	1846	2025	2429	2598	3173	
Total Machinery	**1621**	**1366**	**1358**	**1416**	**1543**	**1915**	**2325**	**2789**	**3454**	**5056**	**3214**	**2438**	**2860**	**3481**	**3937**	**4689**	
Vehicles	91	62	30	36	25	50	34	124	54	41	35	24	39	25	49	38	
Total Machinery, including Vehicles (excluding Ships) ..	**1712**	**1428**	**1388**	**1452**	**1568**	**1964**	**2360**	**2911**	**3508**	**5097**	**3249**	**2462**	**2899**	**3506**	**3986**	**4727**	

	From United Kingdom																
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Locomotives, Locomobiles, and other Motor Vehicles*	154	180	79	105	70	74	110	164	184	160	84	76	77	92	114	122	121
Sewing Machines and Parts	76	79	110	113	179	102	151	143	136	180	164	147	270	270	278	161	127
Other Machinery† ..	769	626	713	691	744	1044	1034	1085	1190	1470	848	644	711	1022	869	1009	1249
Total Machinery	**1000**	**885**	**902**	**909**	**992**	**1220**	**1295**	**1392**	**1510**	**1810**	**1096**	**867**	**1058**	**1384**	**1261**	**1292**	**1497**
Vehicles	3	3	3	3	4	2	2	2	4	3	1	1	1	1	1	2	2
Total Machinery, including Vehicles (excluding Ships) ..	**1003**	**888**	**905**	**911**	**996**	**1222**	**1297**	**1395**	**1513**	**1812**	**1097**	**868**	**1059**	**1385**	**1263**	**1294**	**1499**

* For the years 1901–1907 the item "Locomotives, Locomobiles, and other Motor Vehicles" in the above tables can be subdivided, the principal constituents being as follows :—

	From all Countries							From United Kingdom						
	1901	1902	1903	1904	1905	1906	1907	1901	1902	1903	1904	1905	1906	1907
Locomotives, Locomobiles, &c.	[illegible]	79	90	109	112	124		79	66	71	77	[illegible]	102	92
Vehicles with Motors, not for rails	78	185	260	357	674	[illegible]	892	6	[illegible]	[illegible]	16	14	20	29

† The principal items included under "Other Machinery" in the above tables are as follows, the values only being given in detail for 1900 and subsequent years :—

	From all Countries								From United Kingdom							
	1900	1901	1902	1903	1904	1905	1906	1907	1900	1901	1902	1903	1904	1905	1906	1907
Agricultural Machinery	1585	1109	753	644	570	740	1055		279	166	125	101	102	122	167	158
Electrical Machinery	326	174	115	81	118	131	97	113†	18	6	[illegible]	3	10	[illegible]	[illegible]	7
Cotton-spinning Machinery ..	543	325	208	227	371	271	338	505	494	293	187	202	347	232	313	483
Weaving Machinery	245	117	97	123	145	117	144	197	184	54	49	67	83	62	96	136
Steam Engines	185	100	85	116	164	163	80	[illegible]	45	23	28	31	[illegible]	34	31	40
Machine Tools	337	72	76	[illegible]	147	306	519		31	7	18	12	22	[illegible]	54	52

† Incomplete figure.

TABLE 44.—GERMANY. EXPORTS OF ENGINEERING PRODUCTS (in thousand £)

	To all Countries																
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Locomotives, Locomobiles, and other Motor Vehicles† ..	261	272	248	298	419	694	629	582	664	786	1258	1340	1581	1859	2542	3249	
Sewing Machines and Parts ..	321	321	362	361	448	565	744	814	906	1017	1048	1148	1350	1365	1474	1641	
Other Machinery and Parts‡ ..	2788	2539	2604	3310	3677	4488	5120	5980	7897	9630	7728	7376	8692	9301	10500	13468	
Total Machinery ..	**3370**	**3133**	**3214**	**3969**	**4544**	**5747**	**6493**	**7376**	**9467**	**11434**	**10033**	**9865**	**11624**	**12525**	**14516**	**18358**	
Vehicles	150	248	202	119	166	183	257	258	350	524	654	371	345	397	591	639	
Telegraph Cables	147	95	119	143	251	458	487	678	913	1004	1006	553	1113	1400	1999	1850	2825
Telegraph Apparatus, Telephones	152	138	156	112	136	182	192	149	205	321	234	150	195	382	392	608 §	765 §
Total of principal Engineering Products (excluding Ships)	**3819**	**3615**	**3691**	**4343**	**5097**	**6569**	**7429**	**8460**	**10936**	**13283**	**11928**	**10941**	**13276**	**14703**	**17498**	**21455**	

	To United Kingdom																
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Locomotives, Locomobiles, and other Motor Vehicles † ..	5	19	4	3	4	2	3	5	8	15	82	115	103	182	282	296	142
Sewing Machines and Parts ..	32	33	34	33	36	58	85	95	100	119	118	118	141	115	115	101	101
Other Machinery and Parts ‡ ..	77	90	92	91	90	133	153	222	277	440	517	839	949	897	844	905	967
Total Machinery ..	**114**	**141**	**130**	**127**	**130**	**193**	**241**	**323**	**384**	**575**	**717**	**1072**	**1193**	**1194**	**1241**	**1302**	**1210**
Vehicles	0	1	4	2	2	3	3	15	12	29	16	21	16	15	7	13	12
Telegraph Cables	0	1	1	3	1	1	1	4	76	56	136	45	51	146	124	210	318
Telegraph Apparatus, Telephones	37	26	17	17	12	17	19	23	39	53	53	32	47	80	92	122§	98§
Total of Principal Engineering Products (excluding Ships)	**151**	**170**	**151**	**149**	**144**	**215**	**264**	**365**	**511**	**713**	**923**	**1170**	**1307**	**1435**	**1464**	**1647**	**1638**

§ Including Electrical Safety and Signalling Apparatus in 1907 and last ten months of 1906.

† For the years 1901–1907 the item "Locomotives, Locomobiles, and other Motor Vehicles" can be subdivided, the principal exports being as follows :—

	To all Countries							To United Kingdom						
	1901	1902	1903	1904	1905	1906	1907	1901	1902	1903	1904	1905	1906	1907
Locomotives, Locomobiles, &c.	1053	1025	1225	1079	1557	2193		35	40	26	19	33	[illegible]	[illegible]
Vehicles with Motors, not for Rails	134	267	301	593	833	987	656	44	73	77	161	243	276	135

‡ The principal items included under exports of "Other Machinery" are as follows, the values only being given in detail for 1900, and subsequent years :—

	To all Countries								To United Kingdom							
	1900	1901	1902	1903	1904	1905	1906	1907	1900	1901	1902	1903	1904	1905	1906	1907
Agricultural Machinery	648	464	486	557	523	550	700		8	6	[illegible]	6	7	7	12	15
Milling Machinery	305	279	324	339	385	420	418	558	15	16	18	16	37	19	8	6
Electrical Machinery	1163	997	1076	1086	1079	1142	1557	2020*	86	121	373	290	211	172	143	259
Steam Engines	970	645	819	842	901	923	973	848	85	69	199	276	309	287	207	61
Machine Tools	394	311	737	614	717	1022	2779		11	13	56	62	44	53	179	205

* Incomplete figure.

1315 **Table 45**

TABLE 45.—GERMANY. IMPORTS OF (*a*) SHIPS, (*b*) CYCLES, (*c*) TYPEWRITERS, &c.

(in thousand £)

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Ships—											
From all Countries	99	93	574	422	639	392	257	535	544	1260	
From United Kingdom	21	37	386	232	403	97	68	319	218	1037	1014
Cycles and Parts—											
From all Countries	348	315	212	164	78	67	71	81	92	76	
From United Kingdom	85	45	20	17	6	4	6	7	14	10	9
Typewriters and Calculating Machines—											
From all Countries	—	—	—	112	56	67	34	103	95	115	131
From United Kingdom	—	—	—	10	4	4	6	9	8	8	12

1316 **Table 46**

TABLE 46.—GERMANY. EXPORTS OF (*a*) SHIPS, (*b*) CYCLES, (*c*) TYPEWRITERS, &c.

(in thousand £)

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Ships—											
To all Countries ..	402	993	577	1339	692	610	518	520	500	1115	
To United Kingdom ..	—	0	12	1	0	1	0	17	3	13	7
Cycles and Parts—											
To all Countries ..	495	632	586	520	614	725	957	1067	1489	2479	
To United Kingdom ..	24	34	45	47	59	92	97	76	193	462	790
Typewriters and Calculating Machines—											
To all Countries ..	—	—	—	41	34	51	75	119	116	153	168
To United Kingdom ..	—	—	—	1	1	3	3	4	5	5	4

1317 **Table 47**

TABLE 47.—UNITED STATES. IMPORTS OF MACHINERY FROM ALL COUNTRIES

(in thousand £)

1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
590	**567**	**602**	**702**	**296**	**339**	**587**	**289**	**391**	**340**	**744**	**693**	**760**	**851**	**664**	**613**	**761**	**1034**

1318 **Table 48**

TABLE 48.—UNITED STATES. IMPORTS OF MACHINERY FROM THE UNITED KINGDOM

(in thousand £)

1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
473	**456**	**480**	**605**	**240**	**287**	**504**	**197**	**221**	**240**	**529**	**499**	**393**	**541**	**365**	**359**	**478**	**593**

TABLE 49.—UNITED STATES. EXPORTS OF ENGINEERING PRODUCTS TO ALL COUNTRIES (in thousand £)

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Agricultural Implements—																		
Mowers and Reapers and Parts thereof	436	329	494	599	680	762	669	651	1146	1886	2342	2072	1837	2151	2410	2200	2531	3141
Ploughs and Cultivators and Parts thereof	183	124	83	134	112	107	156	123	193	322	454	393	581	660	737	602	860	728
All other, and Parts thereof	185	217	213	237	255	258	254	317	246	382	558	934	974	1565	1592	1515	1724	1743
Total Agricultural Implements	**804**	**671**	**791**	**970**	**1047**	**1128**	**1079**	**1092**	**1585**	**2590**	**3354**	**3399**	**3392**	**4376**	**4740**	**4317**	**5115**	**5612**
Machinery and Parts of Machinery—																		
Electrical Machinery ..	Included in "All Other Machinery"								428	570	904	1211	1121	1204	1176	1519	1639	1876
Metal-working Machinery	Included in "All Other Machinery"								962	1352	1499	845	620	589	774	903	1343	1952
Printing Presses and Parts thereof	66	60	85	43	57	33	72	135	182	176	254	210	169	219	291	306	329	434
Pumps and Pumping Machinery	Included in "All Other Machinery"								421	565	649	456	450	566	563	649	877	812
Sewing Machines and Parts of	582	601	653	516	489	471	654	696	653	680	946	853	838	1064	1171	1272	1515	1686
Shoe Machinery	Included in "All Other Machinery"								187	178	242	199	201	150	223	265	310	271
Steam Engines and Parts of																		
Locomotive	267	505	358	374	214	496	523	672	809	985	1165	841	679	671	1096	754	1328	1894
Fire Engines and Stationary Engines	65	46	49	53	68	48	48	69	85	73	143	193	154	155	225	210	311	461
Boilers and Parts of Engines	119	140	118	127	148	78	111	140	193	236	368	353	373	518	452	475	518	636
Typewriting Machines and Parts of	Included in "All Other Machinery"							303	396	510	562	589	688	826	945	989	1068	1307
Wood-working Machinery				Included in "All Other Machinery"											154	128	197	250
Cash Registers				Not separately enumerated								182	238	307	383	424	520	518
Laundry Machinery ..				Not separately enumerated								100	112	107	115	108	140	150
All other Machinery ..	1866	2048	2131	2181	2175	2394	3094	4119	2779	3900	4827	4347	4272	4247	4145	5137	5924	6515*
Total	**2965**	**3399**	**3394**	**3293**	**3151**	**3520**	**4503**	**6134**	**7096**	**9226**	**11560**	**10378**	**9915**	**10623**	**11715**	**13138**	**16020**	**18762**
Cars, Carriages, Other Vehicles and Parts of—																		
Automobiles and Parts of	Included in "All Other Carriages and Parts of."												198	251	395	517	729	1146
Cars, Passenger and Freight for Railroads	560	601	275	202	354	181	209	206	362	429	738	1170	793	750	702	657	1728	1899
All other Carriages and Parts of	429	420	405	335	344	315	393	407	351	427	585	581	519	741	772	749	964	982
Total Cars, Carriages, &c.	**989**	**1021**	**680**	**537**	**698**	**496**	**602**	**614**	**713**	**855**	**1323**	**1751**	**1510**	**1743**	**1869**	**1923**	**3420**	**4027**
Cycles and Parts of ..	Included in "All other manufactures of Iron and Steel" prior to 1896."						395	1459	1426	1199	740	524	547	444	409	287	286	246
Structural Iron and Steel	—	—	—	—	—	—	—	—	246	367	591	699	667	409	405	755	1085	1449

* Including, in 1907, Mining Machinery, £1,227,000, and Windmills and Parts thereof, £208,000.

1320 **Table 50** TABLE 50.—UNITED STATES. EXPORTS OF ENGINEERING PRODUCTS TO THE UNITED KINGDOM (in thousand £)

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Agricultural Implements	95	98	130	127	124	156	123	134	239	286	281	395	248	296	401	223	212	181
Machinery and Parts of Machinery—																		
Electrical Machinery .	Included in "All other Machinery"								79	180	327	575	536	470	276	227	240	237
Metal-working Machinery	Included in "All other Machinery"								304	350	392	309	355	273	234	216	284	404
Pumps and Pumping Machinery	Included in "All other Machinery"								132	157	166	138	121	170	169	137	150	98
Sewing Machines and Parts of	214	177	169	177	148	135	196	224	183	199	277	199	220	336	278	256	353	336
Shoe Machinery ..	Included in "All other Machinery"								73	99	122	99	112	59	87	100	113	78
Steam Engines and Parts of	9	3	14	4	6	10	3	11	37	77	249	115	57	72	87	43	40	49
Typewriting Machines and Parts of ..	Included in "all other Machinery"							152	187	220	228	221	238	313	312	333	307	341
Cash Registers ..			Not separately enumerated						—	—	—	56	83	88	97	98	122	97
Laundry Machinery .			Not separately enumerated						—	—	—	48	55	44	35	38	28	34
All other Machinery .	434	448	518	426	442	474	801	1123	607	755	729	675	729	746	710	544	592	729
Total Machinery and Parts	**656**	**627**	**701**	**607**	**597**	**619**	**1000**	**1510**	**1603**	**2037**	**2490**	**2434**	**2506**	**2570**	**2284**	**1992**	**2229**	**2403**
Cars, Carriages, other Vehicles, and Parts of—																		
Automobiles and Parts of	Included in "All other Carriages and parts of"											—	140	140	135	126	198	319
Cars, Passenger and Freight for Railroads	40	13	8	—	—	1	1	13	28	51	97	124	60	72	36	48	57	48
All other Carriages and Parts of	74	78	73	73	93	76	88	106	98	113	171	193	115	161	155	128	125	96
Total	**114**	**91**	**81**	**73**	**93**	**77**	**89**	**120**	**126**	**164**	**268**	**317**	**315**	**372**	**327**	**302**	**380**	**463**
Cycles and Parts of ..	Included in "all other Manufactures of Iron and Steel prior to 1896"						128	495	386	181	96	91	96	55	55	49	46	61

1321 **Table 51** TABLE 51.—FRANCE. IMPORTS OF MACHINERY FROM ALL COUNTRIES (in thousand £)

	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Stationary and Marine Engines, Hydraulic Machinery, Pumps, &c. ..	136	175	179	177	170	185	298	409	298	293	263	254	363	447	580
Locomotives, Locomobiles, and Steam Engines ..	38	63	61	65	57	71	124	353	423	157	93	106	90	167	444
Textile Machinery—															
Carding-Machines, &c. ..	*38*	*69*	*72*	*74*	*57*	*64*	*58*	*86*	*83*	*81*	*79*	*49*	*41*	*63*	*61*
For Cleaning, Opening, and Preparing Textiles ..	*39*	*144*	*144*	*142*	*121*	*106*	*113*	*171*	*164*	*185*	*150*	*123*	*119*	*128*	*122*
Doubling Spindles, &c. ..	*55*	*91*	*93*	*103*	*91*	*106*	*87*	*160*	*132*	*162*	*130*	*107*	*82*	*102*	*138*
Other Spinning Frames ..	*156*	*136*	*120*	*133*	*132*	*114*	*75*	*97*	*72*	*80*	*78*	*51*	*61*	*92*	*110*
Looms	*158*	*157*	*136*	*145*	*125*	*109*	*116*	*204*	*148*	*150*	*170*	*73*	*83*	*135*	*166*
Stocking Frames, &c. ..	*17*	*16*	*20*	*31*	*30*	*27*	*27*	*32*	*35*	*41*	*38*	*36*	*35*	*47*	*55*
Tulle, Lace, and Guipure Frames	*39*	*45*	*54*	*38*	*49*	*46*	*38*	*52*	*90*	*83*	*65*	*112*	*144*	*242*	*346*
Total Textile Machinery	502	658	639	666	605	572	514	802	724	782	710	551	565	809	998
Agricultural Machinery ..	178	144	216	228	324	505	774	854	814	840	1020	1306	1319	1465	1742
Sewing Machines	254	315	303	389	385	388	448	505	533	575	588	602	670	702	848
Dynamo-electric Machinery ..	41	67	56	134	135	150	241	479	206	97	123	121	213	184	405
Machine Tools	139	159	197	149	222	342	412	603	403	374	326	387	651	991	1358
General Machinery	220	249	212	200	279	282	428	681	601	389	370	402	467	593	790
Parts of Machinery	234	334	324	327	349	445	561	684	502	464	531	485	551	659	728
All other Machinery ..	127	116	157	152	179	166	345	346	320	305	253	274	314	469*	1072†
Total Machinery	**1869**	**2280**	**2344**	**2487**	**2705**	**3106**	**4145**	**5716**	**4824**	**4276**	**4277**	**4488**	**5203**	**6486**	**8970**

* Including Electrical and Electro-technical Apparatus, £37,000.
† " " " " " £528,000.

TABLE 52.—FRANCE. IMPORTS OF MACHINERY FROM THE UNITED KINGDOM (in thousand £)

Table 52 1322

	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Stationary and Marine Engines, Hydraulic Machinery, Pumps, &c. ..	37	41	49	50	52	71	60	100	61	59	69	80	111	123	158
Locomotives, Locomobiles, and Steam Engines ..	17	22	28	30	30	35	50	32	28	25	34	44	23	51	58
Textile Machinery—															
Carding-Machines	*18*	*39*	*46*	*50*	*28*	*40*	*41*	*52*	*51*	*46*	*55*	*31*	*23*	*40*	*38*
For Cleaning, Opening, and Preparing Textiles ..	*16*	*85*	*97*	*102*	*79*	*77*	*82*	*120*	*110*	*129*	*100*	*78*	*69*	*87*	*81*
Doubling Spindles, &c. ..	*25*	*50*	*66*	*79*	*67*	*81*	*71*	*120*	*101*	*129*	*99*	*77*	*68*	*83*	*105*
Other Spinning Frames ..	*84*	*80*	*67*	*71*	*78*	*82*	*51*	*58*	*47*	*55*	*55*	*35*	*35*	*65*	*78*
Looms	*54*	*68*	*82*	*81*	*63*	*59*	*57*	*111*	*72*	*72*	*70*	*21*	*34*	*61*	*80*
Tulle, Lace, and Guipure Frames	*26*	*39*	*50*	*35*	*45*	*42*	*34*	*35*	*80*	*79*	*54*	*100*	*132*	*221*	*307*
Stocking Frames, &c. ..	*3*	*2*	*3*	*3*	*1*	—	—	—	*4*	*2*	*1*	*2*	*7*	*3*	*4*
Total Textile Machinery	226	363	411	421	361	381	336	496	465	512	434	344	368	560	693
Agricultural Machinery ..	88	64	80	77	92	102	119	102	97	77	25	117	105	149	158
Sewing Machines	173	203	183	245	230	230	268	295	292	321	322	316	377	388	487
Machine Tools	60	59	61	46	46	100	116	188	117	105	58	51	82	155	315
General Machinery	48	48	54	45	66	64	80	139	81	44	70	62	63	99	179
Parts of Machinery	82	124	121	123	115	152	166	162	121	121	118	97	108	122	153
Other Machinery	37	33	78	66	69	66	79	79	52	42	57	53	58	117	209
Total	**768**	**957**	**1065**	**1103**	**1061**	**1201**	**1274**	**1593**	**1314**	**1306**	**1257**	**1164**	**1295**	**1764**	**2410**

TABLE 53.—FRANCE. EXPORTS OF MACHINERY TO ALL COUNTRIES (in thousand £)

Table 53 1323

	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Stationary and Marine Engines, Hydraulic Machinery, Pumps, &c. ..	23	44	53	108	67	97	113	91	74	61	68	70	71	100	100
Locomotives, Locomobiles, and Steam Engines ..	23	36	44	57	85	57	75	39	69	99	107	121	150	160	181
Textile Machinery—															
Looms	*56*	*34*	*43*	*41*	*39*	*82*	*105*	*55*	*68*	*47*	*39*	*48*	*50*	*46*	*82*
Other Textile Machinery ..	*41*	*54*	*49*	*44*	*49*	*57*	*66*	*68*	*62*	*78*	*73*	*50*	*56*	*53*	*69*
Total Textile Machinery..	97	88	92	85	88	139	171	123	130	125	112	98	106	99	151
Agricultural Machinery ..	108	125	123	120	130	160	188	177	153	180	243	236	205	264	292
Dynamo-electric Machinery..	16	21	36	49	45	57	83	66	84	78	69	61	105	111	104
Machine Tools	186	160	169	231	190	199	186	234	169	152	172	190	253	275	375
General Machinery	84	107	149	175	207	178	187	336	246	217	223	301	357	474	433
Separate Parts	533	680	640	845	741	1144	1244	1287	1081	962	1050	1071	1328	1486	1591
Other Machinery	137	139	173	176	198	170	213	182	232	228	232	237	275	332*	532†
Total	**1207**	**1400**	**1479**	**1846**	**1751**	**2201**	**2460**	**2535**	**2238**	**2102**	**2276**	**2385**	**2850**	**3301***	**3759†**

* Including Electrical and Electro-technical apparatus, £58,000.
† ” ” ” ” ” £207,000.

TABLE 54.—FRANCE. EXPORTS OF MACHINERY TO THE UNITED KINGDOM (in thousand £)

Table 54 1324

	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Machine Tools	22	44	30	37	36	39	21	46	36	27	26	27	26	22	35
Parts of Machinery	15	20	25	44	47	102	73	57	48	71	124	106	100	112	143
Other Machinery	34	26	48	34	24	20	66	38	40	51	33	33	27	35	72
Total	**71**	**90**	**103**	**115**	**107**	**151**	**160**	**141**	**124**	**149**	**183**	**166**	**153**	**169**	**250**

1325 **Table 55** TABLE 55.—FRANCE. IMPORTS AND EXPORTS OF AUTOMOBILES (in thousand £)

	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
						Imports					
United Kingdom	1	7	2	1	1	—	—	—	—	21	18
Germany	3	3	3	7	17	24	35	112	114	164	100
Belgium	3	1	5	11	6	6	8	—	15	22	46
Italy	—	—	—	—	—	—	2	9	23	105	116
Other Countries	1	5	9	2	3	13	6	32	24	35	67
Total	**8**	**16**	**19**	**21**	**27**	**43**	**51**	**153**	**176**	**347**	**347**
						Exports					
United Kingdom	8	23	36	101	333	768	1,267	1,597	1,989	2,424	2,416
Germany	—	—	19	40	47	74	216	308	453	646	544
Belgium	2	8	19	23	46	82	147	268	409	579	623
United States	—	—	—	—	—	—	—	—	266	482	435
Other Countries	15	39	96	213	205	285	403	668	904	1,383	1,756
Total	**25**	**70**	**170**	**377**	**531**	**1,209**	**2,033**	**2,841**	**4,021**	**5,514**	**5,774**

1326 **Table 56** TABLE 56.—SWITZERLAND. IMPORTS OF ENGINEERING PRODUCTS (in thousand £)

	From all Countries															
	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Agricultural and Domestic Machinery	24	69	35	44	58	56	74	95	105	78	47	52	68	111	67	91
Sewing Machines ..	65	72	79	67	71	79	81	92	84	76	87	87	86	135	82	119
Textile Machinery ..	36	33	50	83	74	114	112	76	82	40	42	56	79	88	185	264
Machine Tools ..	21	18	35	43	42	50	60	48	72	47	42	57	84	106	195	275
Parts of Machinery, rough-hewn—																
Coarse	73	77	91	109	132	128	173	201	173	120	118	131	176	198	113	125
Fine	13	20	26	36	59	64	79	110	103	68	76	87	89	146		
Vehicles (principally Motor)	10	13	13	16	21	21	20	21	40	42	50	74	121	165	165*	166
Cycles	54	74	76	73	83	110	131	139	110	108	131	167	86	100	151†	159
Railway Carriages (Passenger and Goods)	98	66	17	17	25	81	91	101	66	29	21	18	18	43	113	47
Other Engineering Products (including Ships)	473	472	415	456	544	626	708	776	636	445	416	453	543	765	802	978
Total	**867**	**914**	**837**	**944**	**1109**	**1329**	**1529**	**1659**	**1471**	**1053**	**1030**	**1182**	**1350**	**1857**	**1873**	**2224**

	From United Kingdom															
	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Sewing Machines ..	28	29	31	21	19	28	30	35	32	26	34	33	35	68	15	24
Spinning and Doubling Machinery ..	9	11	8	18	26	30	11	9	4	7	13	16	14	19	20	34
Other	93	97	95	79	83	78	73	58	62	39	31	35	36	51	40	61
Total	**130**	**137**	**134**	**118**	**128**	**136**	**114**	**102**	**98**	**72**	**78**	**84**	**85**	**138**	**75**	**118**

* Includes Motor Cycles.

† Cycles without Motors only, and parts of Cycles.

TABLE 57.—SWITZERLAND. EXPORTS OF ENGINEERING PRODUCTS (in thousand £)

	To all Countries															
	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Dynamo-electric Machinery	76	99	136	145	219	331	358	490	508	523	426	429	390	484	588	697
Milling Machinery ..	120	152	171	132	143	123	150	161	158	158	192	212	224	237	219	214
Textile Machinery—																
Spinning and Doubling Machinery ..	*46*	*66*	*73*	*83*	*105*	*77*	*77*	*89*	*116*	*81*	*72*	*87*	*102*	*111*	*104*	*120*
Embroidering Machinery	*19*	*30*	*26*	*37*	*51*	*38*	*29*	*59*	*114*	*43*	*62*	*91*	*47*	*99*	*154*	*188*
Knitting and Stocking Frames	*11*	*11*	*13*	*14*	*18*	*17*	*19*	*21*	*24*	*33*	*36*	*35*	*31*	*35*	*40*	*51*
Looms and Weaving Machinery ..	*125*	*146*	*165*	*157*	*165*	*146*	*180*	*204*	*236*	*180*	*189*	*191*	*196*	*181*	*244*	*311*
Carding Machines, etc.	*12*	*13*	*11*	*12*	*12*	*11*	*9*	*9*	*10*	*12*	*11*	*12*	*14*	*12*	*12*	*14*
Total Textile Machinery	213	266	288	303	351	289	314	382	500	349	370	416	390	438	554	684
Vehicles (principally Motor)	2	3	2	2	3	4	5	8	6	10	14	17	70	126	185*	216
Other Engineering Products (including Railway Carriages, Cycles and Ships)	458	469	470	464	500	627	711	773	808	846	877	935	1032	1163	1172	1376
Total	**869**	**989**	**1067**	**1046**	**1216**	**1374**	**1538**	**1814**	**1980**	**1886**	**1879**	**2009**	**2106**	**2448**	**2718**	**3187**

	To United Kingdom															
	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Dynamo-electric Machinery	—	1	2	11	13	17	12	21	52	69	81	28	31	28	14	20
Milling Machinery ..	17	19	19	9	10	12	23	28	13	19	31	21	41	32	20	3
Other	22	13	11	21	17	20	20	15	19	56	59	63	78	99	85	99
Total	**39**	**33**	**32**	**41**	**40**	**49**	**55**	**64**	**84**	**144**	**171**	**112**	**150**	**159**	**119**	**122**

* Includes Motor Cycles.

1328 **Table 58**

TABLE 58.—BELGIUM. IMPORTS OF ENGINEERING PRODUCTS (in thousand £)

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
	From all Countries																	
Machinery and parts—																		
Of Cast Iron	285	339	317	334	384	406	475	528	601	783	1214	921	828	952	1071	1299	1426	1719
Of Iron or Steel	154	154	136	138	156	224	192	241	268	332	598	460	548	515	436	489	660	965
Of Wood, Copper, or other Material	109	128	120	141	148	151	199	225	251	276	382	342	261	285	289	364	436	505
Railway Carriages, Tramcars, and Parts	135	131	83	50	90	71	29	55	64	131	240	107	109	145	142	180	304	433
Other Carriages and Parts, including Cycles, Automobiles, &c. ..	31	52	77	122	132	149	146	112	98	100	102	94	102	116	154	208	268	312
Ships and River Craft of all kinds..	8	7	35	10	27	6	3	13	26	21	24	47	38	8	30	44	43	20
Total from all Countries ..	**722**	**811**	**769**	**795**	**937**	**1006**	**1044**	**1173**	**1308**	**1644**	**2561**	**1970**	**1887**	**2020**	**2123**	**2584**	**3137**	**3954**
	From United Kingdom																	
Machinery and Parts—																		
Of Cast Iron	97	133	125	120	145	141	173	183	218	261	419	285	213	224	260	330	341	472
Of Iron or Steel	36	39	42	29	28	24	32	51	59	79	105	59	89	96	67	56	105	216
Of Wood, Copper, or other Material	29	28	30	44	43	48	49	56	48	63	82	53	44	44	38	51	35	54
Carriages and Parts, including Cycles and Automobiles ..	17	54	57	91	89	100	83	49	48	32	26	18	25	20	27	36	66	53
Total from United Kingdom	**179**	**254**	**254**	**283**	**305**	**314**	**337**	**338**	**373**	**435**	**631**	**414**	**370**	**383**	**392**	**473**	**547**	**794**

1329 **Table 59**

TABLE 59.—BELGIUM. EXPORTS OF ENGINEERING PRODUCTS (in thousand £)

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
	To all Countries																	
Machinery and Parts—																		
Of Cast Iron	658	559	580	403	491	307	397	457	436	573	815	563	378	418	488	480	620	660
Of Iron or Steel	985	914	778	690	679	524	754	806	988	1076	1212	866	619	751	1084	1163	1591	1680
Of Wood, Copper or other Material	217	164	171	141	131	182	203	226	220	258	281	221	235	273	247	273	332	249
Railway Carriages, Tramcars, and Parts	2323	2687	2325	1594	1436	1459	1239	1510	1905	2378	3144	1909	1285	2562	2637	2914	5428	7835
Other Carriages and Parts, including Cycles, Automobiles, &c. ..	19	18	26	36	29	48	85	122	128	162	137	132	195	291	289	378	519	542
Ships, and River Craft of all kinds..	5	5	—	—	19	3	14	10	9	10	29	29	12	38	34	32	35	32
Total to all Countries ..	**4208**	**4348**	**3880**	**2865**	**2786**	**2522**	**2692**	**3131**	**3685**	**4457**	**5618**	**3719**	**2724**	**4333**	**4778**	**5240**	**8526**	**10998**
	To United Kingdom																	
Machinery and Parts—																		
Of Cast Iron	24	15	19	19	34	6	7	16	14	21	35	41	43	53	37	42	77	55
Of Iron or Steel	29	29	27	27	44	27	27	28	27	42	53	62	58	69	122	211	236	217
Of Wood, Copper, or other Material	21	29	22	21	22	36	41	43	52	64	73	58	57	112	96	114	149	105
Carriages and Parts, including Cycles and Automobiles ..	124	228	181	109	135	53	19	31	21	20	51	43	91	140	101	168	235	243
Total to United Kingdom ..	**197**	**301**	**248**	**177**	**235**	**123**	**95**	**118**	**115**	**147**	**212**	**204**	**248**	**373**	**357**	**535**	**696**	**622**

TABLE 60.—AUSTRIA-HUNGARY. IMPORTS OF ENGINEERING PRODUCTS (in thousand £)

Table 60 1330

	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
	From all Countries																
Machinery, Apparatus, and Parts	1470	1562	1584	1897	1889	1779	1640	1814	1917	2170	1764	1836	2024	2193	2642	3257	4292
Vehicles and Ships ..	30	65	60	80	126	79	70	80	70	46	36	42	64	44	55	206	431
	From United Kingdom																
Machinery, Apparatus, and Parts	499	575	584	698	613	491	420	490	473	594	441	473	511	501	615	637	860
Vehicles and Ships ..	6	9	15	20	13	7	9	6	4	2	3	11	2	3	3	3	4

TABLE 61.—AUSTRIA-HUNGARY. EXPORTS OF ENGINEERING PRODUCTS (in thousand £)

Table 61 1331

	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
	To all Countries																
Machinery, Apparatus, and Parts	366	318	335	354	294	289	361	499	599	641	450	583	776	853	972	1168	1085
Vehicles and Ships ..	139	94	111	121	108	119	161	204	227	269	152	166	144	258	220	427	716
	To United Kingdom																
Machinery, Apparatus, and Parts	5	2	3	3	8	9	8	9	8	6	7	9	14	13	11	10	10
Vehicles and Ships ..	—	—	—	—	—	—	—	—	1	1	—	—	1	—	1	3	15

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Abbreviations used in this Index:—

U.K. = United Kingdom.

U.S.A. = United States of America.

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